# AMERICAN AGRICULTURIST

*For the Farm, Garden, and Household.*

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

VOLUME XLI.—No. 6. NEW YORK, JUNE, 1882. NEW SERIES—No. 425.

THE CHILDREN AND THEIR PET LAMB.—*Engraved for the American Agriculturist.*

In our picture the artist has not only chosen a subject appropriate to the season, but one illustrating a pleasing rural scene. The sweet face of the child whose arms embrace the petted lamb, beams with affection, indicative of the early development of the motherly instinct so often exhibited in dressing and tenderly caring for dolls, and in many miniature house-keeping arrangements. There is also a responsive feeling manifested by her companion, whose hand, outstretched to pat the favorite, says more plainly than words, "I love him, too." Those parents are wise who provide for every child, boys as well as girls, one or more pets that they can call their own, and recognize their right of ownership. Attachment to home and kindly feelings are in this way early cultivated,

COPYRIGHT, 1882, BY ORANGE JUDD COMPANY.

ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND CLASS MATTER.

## Contents of this Number.

[Articles marked with a star (*) are illustrated; the figure with the star indicates the *number* of illustrations.]


Acre, Crowd in Another.... ....232
Asparagus Bed, Injuring the..... ..... ..235
Association, American, of Nurserymen..... 263
Bamboos, The, and their Uses, ... .....2*..251
Barley, The Varieties of.....*..244
Bear, A Remarkable..... .....265
Bee Notes for June.... ..... .....239
Boys' and Girls' Columns: — *The Doctor's Talks*; Riding Horse to Plow Corn; How Large is Alaska; Our Puzzle Box; Long Days—How to Shorten them; Some Very Fine Lines; The Fisherman's Daughter.....10*..256-258
Cardoon, What is?.....*..252
Cheese, Cottage, Profitable..... .....245
City People in the Country.....232
Consumption—Important Discoveries.... .....265
Coop, A Chicken.....2*..245
Corn, Raise Your Own Seed.....237
Corn, The Late Planting of..... .... ..... ..236
Cucumbers—Melons—Squashes.....5*..234
Darwin, Death of Charles.... .....264
Drinking in the Hay-Field. .....236
Eating for Working. .. .....233
Farms, Value of—Wonderful Increase in 20 Years...250
Farmers, Most Important to..... .....232
Flannel, Red..... ..... ..... .....263
Forestry, Recent Meeting..... .....264
Forests, State Bounties for. .....237
Fuel Question, The..... .....266
Goats as Milk Producers..... .....266
Grape-Vine, The, in Summer..... .....4*..253
Grape-Vines, A New Class of Tuberous-Rooted.....251
"Greenbacks," Covering Land with.....265
Harness for a Bull.....2*..249
Hay, A Method of Curing.....2*..248
Hay, Feeding Experiments with.....236
Hay or Wood? Will You Feed.....232
Hay, Some Facts About Cutting..... .....249
Hens, Egg-Eating..... .....234
Horses, Clydesdale..... .....*..243
Horses, Feeding Whole Corn to..... .....266
Horses, Grooming..... .... .....250
Horses, Lameness in.....244
House, Country, Costing $600 to $800..... ..6*..238-239
Household:—The Wastes of Country Houses; Cooking Beefsteak; Our Daily Bread; Reading for the People; Barrel Frame "Easy Chairs."..... 5*..254-255
Improvements in the Harvest Field..... 2*..247
Insect Powder, The Uses of.....252
Insects on Garden Vegetables.....235
Insects Some Apple.... .....3*..237
Insecticides and Fertilizers..... ..266
Label, Which is the Best?..... .....235
Lambs, The Pet .. ... ..... .....231
Law for Farmers—Cattle in the Highway.....248
Lawn in Summer..... .....235
Lunches, Are, Bad?..... .....233
Manure, What a Pint Did .....233
Mats, Inexpensive Home-Made.....*..236
Milk the Year Round.....247
"No Shoe, No Horse,"..... .....265
Pickles, Plants for.... ..... .....236
Pig-House Furniture..... .....7*..246
Plants, Are House Injurious to Health?..... .. ....251
Post, Staying a Vineyard..... ..... .....*..253
Potatoes, Imported. .....266
Poultry Houses, Summer, and Yards.....248
Preserving Eggs.....248
Prices, How to get High, for Fruit .....234
Pruning in June..... ..... . .....234
Quinces, the Best Soil for.....252
Sashes, Take Care of the.....235
Scarecrows... .....246
Scraper, A "Fork" Stable..... .....*..245
Silk Worms and Mulberries.....266
Sparrows, Those Bad.....265
Spinach, New Zealand..... .....*..252
Sugar from Sorghum..... .. .....265
Sugar of the Maple, Where Stored.....265
Sweet Herbs, Provide ..... ...236
Table Cover, An Economical. .....*..236
Tethering and Picketing Animals.....*..247
Thinning..... .. .....247
Tool-Boat, A Farm..... .....*..233
Transplanting..... .....235
Trough, Self-acting Chicken..... .....*..233
Turkey, Wild, The Wooing of..... ..... .. ....3*..242
Weeds, Worse and Worse..... .....239


**Important Announcements will be found on Page 264. Subscription Terms and some Postal Matters, etc., are given in detail on Pages 272 and 263.**

**The full exposures of humbugs and frauds in this number of the American Agriculturist make it worth far more than a whole year's subscription to any farmer in the country. Show it to your neighbors.**


# AMERICAN AGRICULTURIST.

NEW YORK, JUNE, 1882.


## Suggestions for the Season.

### Most Important to Farmers.

No matter how well one's plans are laid, how good the soil, how fully are provided implements, teams, seed, and fertilizers, if a man is laid on his back, or confined to his house by ill health, or if he feels so poorly that he can scarcely drag through the day, the best success can hardly be hoped for. If so situated, as few farmers are, that one can command abundant help, and if able to be with the workmen, directing and encouraging them, still, if the physical organization is not in order, the mind and the judgment will be more or less affected, and the most successful plans are not certain to be made and carried out.—Out-door exercise, in country air, contributes so much to health and vigor, that farmers are, as a rule, the most careless class in regard to keeping their own bodies in the best condition. Some are even more careful of their animals than of themselves. Mechanics, both employers, journeymen, and apprentices, usually have limited hours of labor, nine or ten in the twenty-four, with part of Saturday off, and these hours are in the best part of the day, when the sun is up, and the miasmatic vapors arising from the ground always and everywhere, are lifted up and dissipated. From the nature of their occupation, farmers necessarily work or "chore" early and late during the busy season. They are out in the morning while fogs, dews, and organic exhalations hug the earth before the sun's rays have started a brisk circulation, and ascending currents carry upward and dissipate the unhealthful stratum of atmosphere which the colder night temperature brings down. (For this reason, sleeping in the second story, as high up from the ground as practicable, is always better than to occupy a first-floor bed-room, especially during spring, summer, and autumn.)—Then, as night comes on, the falling temperature and dews have a stronger effect upon the system, wearied and depressed by the long day's hard labor, and the night choring is the most risky portion of the day. Though the early morning air is most loaded with unhealthful exhalations, the body is then invigorated by rest, and the temperature is rising instead of falling. Health and vigor are so important, that we offer some suggestions elsewhere for increasing and conserving them.

### Will You Feed Hay or Wood?

A great deal has been said and written about the proper time of cutting hay. Prof. Jordan discusses the subject from an experimental and scientific standpoint, on page 249 of this number, and another item elsewhere refers to Mr. Sanborn's experiments.—The outcome of the discussion and experiments, thus far, seems to be that the best time, all things considered, is to cut the grass just after it has come into full bloom, though many think the preferable time is just when it is coming into full blossom. As it is impossible to always mow every field just at the right moment, the general safe rule is, we think, to be all ready to begin at full bloom, and finish before it is entirely past.

There is this important fact to be kept in mind, viz., that as soon as grass of any kind has attained its growth, and is full of juices, it begins to change more and more into woody fiber, and that when fully ripe, a large part of the stems or stalks differ very little in composition from dry wood. And every one knows that dry wood is neither easily digested nor nutritious. It stands to reason that a stalk of grass cut when it is full of juice containing sugar, gum, and protein compounds, and cured thus, must be more nutritious than if left standing until a part of these constituents have changed into woody fiber. Feeding hay not cut until it is thoroughly ripe, is giving the animals that which is in part only so much wood.—The practical lesson is, make a good ready well in advance, now, and have the barns, mows, stacking arrangements, mowers, scythes, horse and other rakes, forks, wagon racks, in short, all things, in perfect order—and the work planned, so as not to let any hay-field get into the fully ripe condition. Head work beforehand, will save hard work and worry, and secure better hay.

### Crowd in Another Acre,

Except under a certain condition. It is too soon to predict good or poor crops. The gauntlet of storms, cool weather, rust, and insect ravages, has yet to be run by every farmer everywhere, before he knows how much hay, wheat, oats, corn, or any other crop will be safely gathered in good condition. It therefore behooves every one to now get seed into every possible acre, and half acre. If the crops are poor, every additional acre will help out. If they are good, every such acre will increase the surplus.—*It is not too late* to plant corn. We have seen good corn from seed planted after the middle of June. In multitudes of instances we have known cold, wet weather to rot the seed planted in May; in many others, the plants got a poor start for the same reason, and made slow growth all the season, when seed planted in the warm soil of the first half of June, started at once, made vigorous growth, and at the gathering showed much better per acre in the crib than the May planting. So, cast about, and see if it be not possible to add a little to the surface of growing corn, or of something else.

### "Except Under a Certain Condition."

"Crowd in another acre, except under a certain condition," is urged upon our readers above.—What is the exception?—Bad weather and insect ravages, especially the latter, can not always be guarded against. But weeds lessen the corn yield, one year with another, taking the country together, far more than grasshoppers, cut-worms, birds, and all other pests. Indeed, is it rash to say that weeds exert, on the whole, more influence upon a corn or potato crop than the weather, in average years? A mass of weeds around the roots of crops, not only shut out the vivifying sun's rays, so necessary to vigorous growth, but every weed-stalk and leaf allowed to grow, steals some nutriment that the crop roots ought to have. Will any one contend that, on a weedy soil, a planted hill or drill crop, left to grow with no cultivation, will be likely to yield half as much as one kept clean of weeds? We emphasize the fact that every single weed left to grow takes something from the crop.—The "certain condition" referred to above is, that *if* a farm has already more hoed crops planted than there is any certainty or probability of keeping under fair subjection, as to being smothered by weeds, by home help or hired extra force, then it may not be advisable to add the "extra acre," so strongly commended; but rather turn the whole attention to securing the best results from that already planted.

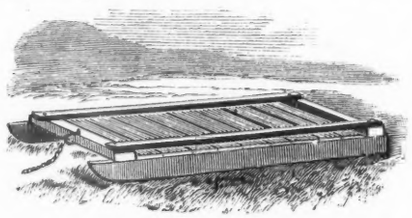
### City People in the Country.

City people go to the country for health. Most who do so gain somewhat in vigor, but mainly because of the change in one's current of thought, relief from mental strain, simpler diet, and more physical exercise. But they often lose much they might gain, and, if not prostrated by sickness, very many carry home the seeds of disease, that earlier or later develop into suffering if not ultimating in death. And this because of ignorance or neglect on a single point. The pavements or hard surfaces of city streets, the brick walls and even the wooden ones of the compact dwellings, absorb heat during the day and retain it up to midnight, partially until morning. This heat radiates slowly from such surfaces, and air currents, obstructed by the buildings, do not circulate freely to carry heat away. For this reason city people can sit on the porches or

verandas, or in rooms with windows all open, until a late hour, without any marked chilliness. But in the country, the soil and vegetation quickly radiate into the air the day's accumulation of warmth, and before the sun touches the horizon the temperature of the atmosphere is rapidly falling. Hence those who carry city habits to the country, sitting outdoors or before open windows in the evening, neglecting to put on additional clothing at sundown, and more at a later hour if needed, are pretty sure to lay the foundation of catarrhs, colds, and lung complaints, or other diseases, that largely counteract, if not entirely overbalance, the benefit derived. Attention to this one item will in most cases, in connection with the other advantages named above, make a few months, weeks, or days even, spent in the country, of inestimable value to every dweller in any densely populated city.

## A Farm Tool-Boat.—Very Convenient; Cheaply and Quickly Made at Home.

One of the greatest conveniences on every farm is a simple sled, resembling the ordinary stone-boat, for moving plows, harrows, and other implements, or barrels of seed, fertilizers, etc., to or from the fields, or anywhere about the premises. Such a low vehicle saves a deal of lifting heavy articles into wagons or carts. Any man can construct one in less than half a rainy day, and with but a trifling outlay. The two runners may be of hard-wood scantling, 4 inches square, and 7 to 9 feet long—the straighter the grain of the wood the better—or two poles of suitable size may be cut from the woods, and the top surface hewn flat with an axe. The front ends are tapered upward with a long scarf, to make them run easily. Frequently one can find in the woods suitable poles having a natural bend just adapted for the fore end of the runners. Far enough from the front and rear ends to avoid splitting, two cross-pieces of scantling or poles, 3 to 3½ feet long, are laid on, and between these, inch boards of the same length are laid across, and spiked on to the runners with large nails. Over the runners are placed two raves or side-pieces, scantling or poles of smaller size than the runners, and of about the same length. If round poles are used for the runners, cross-



pieces or raves, one or all of them, they are flattened where they come together at their crossings, to make good joints. But without flattening, they may be let partly into each other, especially the cross-pieces and raves, by sawing a little ways in, and cutting out the wood smoothly with a broad chisel.—The three pieces may be fastened together at the four corners with a tough wooden pin, driven firmly in an inch auger hole. But strong, machine-made iron bolts, with a head, screw and nut, can be got cheaply at almost any hardware or country store, or the blacksmith will make them. Put these through from the bottom upwards, and sink the head well into the runners, to be out of the way when they wear off somewhat. Put the nut on at the top with iron washers, or with two or three thicknesses of leather washers cut from old boot-legs. If the bolts project upward, to be troublesome, nail over each a bit of wood with a hole in it to receive the bolt, and taper the wood off each way. The team can be attached to a clevice in the middle of the front cross-piece, or a chain may be put round and kept in the center by cutting a notch in, or by driving in iron spikes or strong wooden pins. This cross-piece needs to be strong enough to bear any pulling force likely to be applied. Unless the raves or side-pieces are well notched down upon the cross-pieces, the space between the raves and runners can be closed with a strip of board nailed on the inside, if the sled is to be used for hauling manure, earth, or gravel. If desired, wide boards can be set in along the sides and across the ends, to form a box.

## Eating for Working.

The importance of this matter is far too little appreciated or understood by the great majority of farmers. Many who carefully consider what kinds and quantities of food, of oats, corn, ground and cut feed, hay or grass, will enable them to get the most good work out of their horses and oxen, the richest milk, or largest amount of it, from their cows—also the best times of feeding—sadly neglect to use similar thought and care respecting themselves and their workmen. The foreigner working a New Jersey farm, in explaining how he got together money enough to buy it, said: "We sells every ting that brings de cash; what wont sell, we feeds to de hosses; what de hosses don't eat, we feeds to de cows; what de cows don't eat, we feeds to de sheeps; what de sheeps don't eat, we feeds to de pigs; and what dey don't eat, we eats ourselves." This is an exaggerated statement, of course, but it illustrates a principle too often followed—selling the good and eating the poor.

Strength comes *only* from suitable nutritious food, well digested. A man, whether employer or employed, will have far more working power if he eats as much, and only as much, as he can digest well, of lean meat, properly cooked, good bread, oat-meal, ordinary and curd cheese, and the like, than if consuming salt fat pork, cooked almost to a crisp, with potatoes, etc. A laborer paid a dollar or more a day, will do double real work if 5 to 10 cents extra be spent in supplying him with food that will give him the fullest strength. Beans, if not charred or browned in cooking, peas, green or ripe, good bread, and cabbage thoroughly cooked, supply the elements for muscular force.

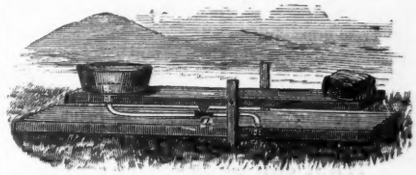
The blood is the active helper in digesting food, by supplying the gastric solvents, and it carries nourishment to the muscles and to the brain. While a heavy meal is being worked up, the blood is drawn away from the muscles and brain to the stomach. When at hard work or exercise with mind or body, the blood is drawn from the stomach, and less nutriment is obtained from the food. It is a good rule to work slowly at first, after full meals, and increase the amount of exercise gradually, as the blood can be spared from the digestive organs. More will be accomplished by this course in working and thinking. The French people, who make a study of the subject, take a very little food on rising, a roll and coffee, and perhaps a baked apple, and begin work at daylight. Towards noon they take another similar simple repast, and do a full day's work by 4 o'clock in the afternoon; then rest a little, take a full hearty meal, and make a business of digesting it. During the rest of the evening and night, this meal is digested, diffused all through the system, and quietly builds up and strengthens the muscles, so that they are ready for vigorous work the next day. Experienced horsemen understand that with a heavy feed of oats, etc., at night, and a light breakfast, a horse gets a reserved stock of muscular strength laid in in advance, and will travel faster and further than one having a hearty morning feed to start on.

## Are Lunches Bad?

Alternate activity and rest is a law of nature, for every part of the body except the heart and blood vessels, and for the mind also. This law can not be violated without more or less harmful results, whether they are noticed or not. The human stomach must have periods of rest, or it will weaken and finally fail. It is in one sense the gristmill that supplies the whole body with nutriment. The mill keeps to work as long as there is anything in it to grind. An ordinary heavy meal requires 4 to 5 hours for being dissolved, and sent out to the system; in weak stomachs more time is needed. Then the stomach wants quiet and rest of at least an hour or two to recuperate itself, during which the other parts of the body and the mind may be active. As a rule, not less than six hours should intervene between meals. A lunch of any kind, even milk itself, if put into the stomach before it has disposed of the previous meal, *and rested*, is harmful. Lunches between meals, nibbling at cake, candy, fruit, at anything that must be digested, keeps the stomach at work, and robs it of rest absolutely needed. Even beer and sugared drinks have to be digested. The feeling of faintness, of "gone-ness" experienced in the hay or harvest field, usually comes from the disturbance of a hearty breakfast or dinner that, by reason of hard work and depressing heat, is still undigested. The lunch quiets it, but partially unfits the stomach for attacking the next meal; the best way is to do without the lunch; stop work when too weary to go further, and rest at least 15 or 20 minutes before taking food; then rest a little more, and gradually push on to one's full measure of strength. Attention to these matters will wonderfully increase the amount of work, mental and physical, which one can accomplish during a year, or series of years.

## Self-Acting Chicken Trough.

When water can be brought in a pipe from a spring or other source having a little higher level, it is convenient to have a simple apparatus to regulate the flow of water without giving it personal at-



tention. Among the various methods of accomplishing this we present the one above. A plank or board lies upon or near the ground. Above this another board is held on a wooden or iron bolt between two stakes. On one end is placed a stone of suitable weight; on the other end a water-pan of any convenient size and form. A small lead or iron pipe, which need not be over a quarter-inch internal diameter, comes up from the ground, runs between the boards or planks, and enters the water-pan. This pipe is separated at *a*, and a short piece of moderately thin India-rubber pipe is put on. Over this a piece of wood with a pointed lower end is fastened to the upper board. The stone weight can be so adjusted that when the water-pan is filled or partly filled it will press this point down upon the rubber and close it. When the water diminishes that end will rise and let in more water.

## What a Pint of Manure Did.

A Wisconsin farmer sends this experience to the *American Agriculturist:* "Last year, in hauling yard manure across a field afterwards planted to corn, some of it scattered off in driblets, from a handful to a pint or so in a place. When planting the corn, I found portions of these droppings, and where noticed, drew them into the hills, and with the hoe mixed them a little with the soil as the seed was dropped. In three instances, where a large handful or about a pint of the manure was thus put in, a stick was driven down to mark the hills. When hoeing, we noticed that in these hills the corn plants had started off more vigorously, were greener, and at the third hoeing they were 6 to 12 inches higher than the other hills adjoining. Our curiosity being awakened we followed up the observations, and when gathering the crop, each of the three stalks in all the three hills, had on it two large plump ears, while the surrounding corn did not average one good ear to the stalk."

### Thinking and Figuring.

"This set us to thinking and figuring. That bit of manure had given the young corn roots a vigorous start, just as good feed starts off a young calf, or pig, or lamb, and the roots penetrated further in every direction and gathered more food and moisture. These stalks being better nour-

ished from below, ran far away from the poorly fed neighbors.—As to the figures, the rows were 3½ feet apart, and the hills 3 feet distant in the rows, say 4,000 hills on an acre, and 4,000 pints of manure is about 62½ bushels, or two large wagon loads. Anybody can reckon the difference between six large, well-filled ears of corn on each hill, and less than three per hill, and the cost of the manure as compared with the total value of the final crop. The plowing, and the seed, and the hoeing, amount to the same in each case. All I have to say is, that every corn-hill planted on my farm this year will have at least a pint of manure in it....."

## Egg-Eating Hens.

It is a serious drawback upon the profits of the poultry yard when the hens eat the eggs, and this is generally brought on in their confinement in summer, to which most villagers and some farmers have to resort. This seldom occurs in flocks that have their liberty. In this case, as in many another, an ounce of prevention is worth a pound of cure. The craving for animal food is met by the great numbers of insects in the summer. With a supply of grain the flock at liberty gathers enough animal food. If cut off from it, it must be supplied in their confinement. The maximum production of eggs cannot be kept up without it. One of the cheapest and most effectual sources for those who keep a cow is skimmed milk. All kinds of poultry become very fond of this, and with green food and grain will do fairly well in a large yard. Other sources of supply are butcher's offal, fish offal, and chandler's greaves. Hens finding other animal food respect their own eggs. In obstinate cases the only effectual cure is the hatchet.

## What can be Sown in June.

Those who have a time of "making garden" in early spring, and doing up the sowing all at once, do not get the greatest good from their gardens. There are many vegetables of which the season can be greatly prolonged by making successive sowings. A striking example of this is Sweet Corn, which, by judicious sowings may be had every day until frost stops its growth. In many localities, the most thoroughly tropical plants, such as Lima Beans, Okra, and the Melons, do better if put in now than if sown earlier. For succession, after the first sowing, put in Bush Beans, Beets (allowing plenty to be used as beet greens), Cucumbers, and other pickle plants. Carrots, Kohl Rabi, and Salsify, are among those that may still be sown and make a crop before frost arrives.

## Cucumbers—Melons—Squashes.

DESTRUCTIVE INSECTS—REMEDIES.

Every one with much gardening experience knows that to succeed with any of the Gourd Family (which includes Cucumbers, Melons of all kinds, and Squashes, early and late), there must be a constant fight with the insects which especially attack these plants. One of the best known of these is the "Striped-bug," or properly "Striped-beetle" (*Diabrotica vittata*), (fig. 1.) Gardeners have learned that by far the best treatment of young cucumber and melon plants is to place over each hill a frame of boards, 12 or 15 inches square, 6 or 8 inches high, the top of which is covered with millinet, mosquito-net, or some similar fabric. These boxes shelter the young plants from cold winds, and their slight covering will prevent injury from a chilly night, and even from a slight frost; besides this, they keep off the Striped-bug until the plant outgrows the frame, and is large enough to not be seriously injured by its attacks. After awhile the Striped-bugs diminish in numbers, and the cultivator congratulates himself that all will now be well; but here and there his vines soon begin to wilt, and perhaps die. If he carefully takes up the wilting vine and examines the root, he may find the reason for its flagging: numerous worms (fig. 2), nearly half an inch long, about as thick as a good-sized pin, whitish, with a blackish-brown head, feeding at the root. This, which does so much damage at the roots, is the grub state or larva of the same Striped-beetle, so destructive to the tops of the vines. When the beetles disappeared, they had provided for another brood by laying eggs near the surface of the ground, from which come these "worms" at the root. The grubs complete their growth in about a month, form a chrysalis in the ground, and after two weeks come out as perfect beetles to continue their mischief. It will be seen that the destruction of every Striped-beetle by hand-picking or by any other means, will be a great gain, not only as regards the injury that it may do as a beetle, but in preventing the underground work of its progeny. A relative of this common Striped-bug, but with its marks in spots instead of stripes, is found in some localities, and it is equally destructive.

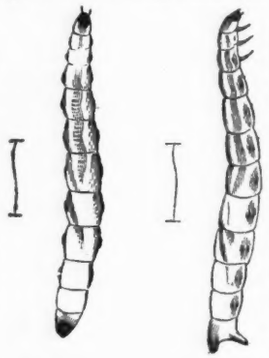


Fig. 1. STRIPED CUCUMBER BEETLE.



BACK VIEW. SIDE VIEW.
Fig. 2.—LARVA—MAGNIFIED.

In some Western and Southern States, great damage has been caused by what Prof. Riley calls the "Pickle Worm." This is the caterpillar or larva of a handsome moth (fig. 3,) (*Phacellura nitidalis*). Its yellowish-brown wings have an iris-purple reflection, and the fron wings have an irregular, semi-transparent, dull golden-yellow spot. The larva (fig. 4,) is yellowish-white, tinged more or less with green, and has numerous shiny, slightly elevated spots, each of which bears a fine hair. Its length is about half an inch. These bore holes in the young cucumbers and melons, often causing them to rot. Several are often found in one cucumber. As they have been sometimes found in cucumbers after they have been pickled, the name Pickle Worm has been given to the larva. Thus far, this destructive insect has only been found in a few localities. The vines should be carefully watched, and all infested fruits cut at once and fed to the pigs or destroyed, in order to prevent a second brood.—Very destructive to Squashes and Pumpkins, and occasionally to other vines of the family, is the "Squash-bug"—in this case properly called "bug," as it is not a beetle, but belongs to the true bugs, as the Bed-bug, Chinch-bug, and other unpleasant insects. This Squash-bug (fig. 5) called formerly *Coreus tristis*, but the later works give it as *Anasa tristis*. It is a little over half an inch long, of a rusty-black color above, and dirty-yellow beneath; it gives off, when disturbed, an odor that has been described as like that of "an over-ripe pear." We never met with a pear so "over-ripe" as to have this odor, which is one so sickening that few persons will care to test it more than once. These insects pass the winter hidden in crevices, in fences, and other places of shelter, and near the end of June, or early in July, they make their way to the squash vines, where they mate. They are quiet during the day, remaining on the ground or on the stems of the vines, but at night they are busy in gluing their brownish eggs in little patches to the under-side of the leaves. The eggs soon hatch, and the young insects, paler in color and more rounded in shape than the old ones, stay together for awhile upon the same leaf; but as they change their skins and grow larger, they scatter upon the leaves of the vine, which they puncture, and from which they draw the sap, soon causing them to wither and die. In September and October, they reach their full size, and then seek a place in which they may pass the winter in safety. There is scarcely any destructive insect with which hand-picking at the right time is so effective as this, and it is not difficult to keep them in control if properly attended to. When they first appear, the vines are small, and the parent insects may be found upon them or on the ground close by, and are easily caught. Next the eggs should be looked for, and being in patches are easily crushed by the thumb and finger; if the eggs escape, the young will be found in clusters for awhile, and they are then very readily destroyed. If proper care be taken, there is no reason why any should escape.

3.—MOTH OF PICKLE WORM.

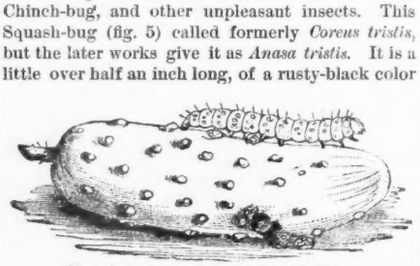


Fig. 4.—LARVA OF PICKLE WORM.

Fig. 5. SQUASH-BUG.

It is very important that every cultivator should understand the habits of destructive insects. There is a time in the life of most of these pests, when they may be most effectively destroyed, and in many cases, hand-picking is the best remedy.

## Pruning in June.

We have tried pruning in almost all months of the year, and on the whole prefer June. This being about the busiest month of the year, there is usually little time for pruning, and so the favorite time is early in spring, and many of our old orchards, in their rotting limbs and decayed trunks, bear testimony to the mischief wrought by the ill-timed use of the saw and axe. Small limbs, an inch in diameter or less, can be taken off at any time with comparative safety. But the thorough pruning called for in a long-neglected orchard is best done in the early summer. The sap is absorbed by the rapid formation of wood and leaves; the wood laid bare in pruning large limbs soon becomes seared, the healing process around the edges of the wound begins immediately, and in a few years the wound will be completely covered with new wood and bark. There is no chance for decay as when large limbs are removed in the early spring. There is far too little pruning done in the farm orchard. A dead limb should not be suffered upon the fruit tree. Good pruning leaves no stubs, but cuts close to the trunk or branch to which the pruned limb is attached.

## How to Get High Prices for Fruit.

The much-quoted saying of Daniel Webster regarding the legal profession: "There is always room at the top," applies also to fruit selling. No matter how abundant the supply of any fruit, or how much the market may be "glutted" with strawberries, peaches, pears, or apples, while common fruit will be of slow sale at any price, that which is a little larger, finer, or better colored, will always sell and at good prices. In cities there are many wealthy persons who do not care for the price if they can get what they want. We saw recently a basket of hot-house grapes that had been sold for $5 per lb., and at the same store forced peaches were sold at $1 each. Of course these are extreme prices, but they prove that there is a market for the fine and unseasonable. We mention them to show that "there is always room at the top." The fruit grower who produces the best is not only sure of a sale, but at prices far above those for common fruit. How can the best fruit be grown? will be asked. If the grower of cabbages should try to take a crop from the same soil

year after year, without applying manure, he would fail, and every one would laugh at him. Yet a fruit grower will carry off a crop, year after year from his orchard, without returning anything to the soil, and thinks that varieties have run out. Manuring the orchard is the first step towards good fruit. The next is thinning. In March last it was shown by an article from a correspondent, where fruit from peach-trees that had been thinned brought double the price of that from unthinned trees. This increased price was paid because the peaches were larger and better. And the same holds good with pears and apples. "But it is too much trouble to thin the fruit on an apple-tree." Then don't do it. But *is* it too much trouble? Try it on a single tree. After the fruit has fairly set, go over the tree by means of step-ladders, and remove two-thirds of the young apples; keep an account of the cost, and at harvest-time an account of the returns from the fruit from this tree. It will then be easy to determine whether it pays to thin or not.

### Insects on Garden Vegetables.

In some localities one or more of the Cabbage Worms is still troublesome. The most common of these are the caterpillars of medium-sized butterflies, the wings of which are white, with a few black spots; there are three distinct species, but all are similar in their habits. Wherever these butterflies are seen flitting about over the cabbage and cauliflower plants, trouble from "worms" may soon be expected. Safety consists in attacking them early. Some worms eat into the forming head, and when they have thus hidden, nothing can be done. In small gardens, hand-picking will answer, but where there are many cabbages, this is not practicable. The Persian Insect Powder, the *Pyrethrum*, is the best, and a safe application (see article on its use on page 252). In former volumes we have given the experience of those who have successfully used hot water, to reach the plant at the temperature of 160°. There are in some localities cabbage worms which come from other butterflies, but they are to be treated in the same manner. The large green caterpillar, of the 5-spotted Sphinx, known as the "Tomato Worm," is most destructive; it will soon leave nothing but bare stems upon a tomato plant, eating the green fruit as well as the leaves. When the tomatoes are supported by some kind of a trellis, as they always should be in a garden, worms may be detected by the quantity of large pellets of droppings found upon the ground. Where these are seen, the worm should be sought for. Stems without leaves also indicate its presence. When not eating, it will be found close to the stems, on their underside, and as it is of nearly the same color, may escape notice. The "worms" are never very numerous, and hand-picking is the best way to deal with them. In spite of the horn at the tail-end, they can neither sting nor bite. Frequently one of these will be found with its body nearly covered with small egg-shaped white cocoons, often mistaken for eggs. Worms with these should not be destroyed, as they are too weak to do much damage, and the parasitic insects should have time to leave these cocoons, as they are our friends, and should be encouraged. The Tomato-worm may sometimes be found on potatoes.

### Transplanting.

This month and next there will be much transplanting from the seed-beds of late cabbages, celery, and other plants. It is the custom with many to wait until there is an indication of rain, and thus hurry up the work in order to take advantage of cloudy and wet weather. This is well enough, though by no means necessary. In transplanting, as much depends upon taking up the plants as upon setting them out, and if both these are properly done, we need not wait for a rain. In taking up plants from the seed-bed, we wish to preserve as many of the fine fibrous roots as possible; hence the first step is to water the bed, in order to soften the soil and thus prevent breaking the roots. Have at hand an old pan or other vessel, in which there is some rich loamy earth mixed with water to form a mixture like thick cream or thin batter; keep this well stirred and as the seedlings are taken up, draw their roots through this until they are thoroughly coated. In taking up the plants, they should be examined; cabbages and cauliflowers, for example, often go "blind," as gardeners say—that is, the growing bud becomes obliterated; these will never form a head, and should be rejected with those that have malformed roots or crooked stems. With the roots thus protected the seedling plants may remain for several days, if anything prevents setting them. It should always be done with plants that are to be sent to a distance. On a large scale, market gardeners depend upon rapid work and on keeping the plants constantly wet. In putting out the plants, the dibble is generally used. This is a stick an inch or so through, about a foot long, and with a convenient handle, usually the natural crook of a branch of some hard-wood tree. The dibble is pushed into the soil to make a hole, the plant is put in, and then the dibble is thrust in again near the plant, and with a sidewise movement the earth is crowded up firmly against its root. When the dibble is again withdrawn, some of the surface soil is pushed in to fill the hole it has made. To make sure of close contact of the earth with the root, the planter usually goes over the row and presses the soil with his feet. In setting cabbages, cauliflowers, and other plants that make a stem, they may be put an inch or so deeper than they were in the seed-bed. Those which, like celery, have no distinct stem, should be set no deeper than they were before.

### The Lawn in Summer.

In the spring months, when there are frequent showers, and the grass is in rapid growth, the lawn-mower may be used as often as once a week with decided benefit. But in our climate, with its extremes and uncertainties, such fixed rules, as "mow once a week," will lead to trouble, if followed. With the first drouth the grass on the lawn shows a diminished growth, and is often really at a standstill. At such times, nothing worse can be done to the grass than to cut it. All that there is above ground is needed to sustain the root, and incidentally to shade the surface. In the treatment of the lawn, as in all other gardening operations, some thought should be given to the present condition of the plants, and the object to be gained by any operation. The kind of grass varies the time or frequency of cutting. A fine, thick bottom-growth of June-grass, or Blue-grass, may be kept pretty closely shaven. But many front yards and lawns have a Timothy or Herd's-grass sod, and if this is allowed to grow 8 to 12 inches high and then cut, it will leave a woody stubble, and if dry weather prevails, it will be a long time before a new growth from the roots comes up, the plot in the meantime having the appearance of a burned-over surface, or a dry stubble at best.

### Take Care of the Sashes.

The sashes of hot-beds and cold-frames meet with more injuries while out of use than during real service. When the weather no longer requires them upon the frames, they are usually left with one edge resting on the rear of the frame, to be ready if a sudden cold spell requires them to be put on again. Many years ago we left our sashes thus, but one day, hearing a sudden noise, we looked out in time to see our whole stock of sashes up in the air. A sudden whirlwind had passed over, and took them up as if they were sheets of paper. The going up did not injure them; it was the coming down that was costly. Even a less violent wind than a small cyclone will overturn and damage sashes, if left in this manner; and they are liable to injury from other causes. It is safer to always stack them at the ends of the frames, laying down a couple of pieces of scantling to keep the bottom one from contact with the ground, and place them evenly one upon another, putting the shutters at the top. Even when thus placed, it is well to put a log or heavy bit of timber on top, to prevent a violent gust from displacing them. If a sudden change of weather makes sashes necessary, they will be at hand for use, and the slight labor in stacking them will be more than repaid in the saving of glass.

### Which is the Best Garden Label?

Is a question that has for some time exercised our friends across the water. When the "Society of Arts" proposed an exhibition, at which premiums were to be awarded, we felt that we should have something conclusive. The exhibition was held, but premiums were not awarded, and exhibitors were told to try again. What is worse, the label question has broken out in the papers more profusely than before. In all this uncertainty, we congratulate ourselves on the fact, that for all trees, shrubs, and plants that remain in place year after year, the very best is *No* Label. Of course, with temporary plants, at least until we get well acquainted with them, we must mark them, and for this a permanent label is not needed; but for all other things, a record is simpler, and answers even better than the best label. This should be made in some permanent form, to be kept in the house for safety, while a copy in a memorandum-book may be for ready reference. Fruit trees and plants are usually in rows, and to make the record, we have only to rule a piece of paper with perpendicular and cross lines to divide it into squares. Number the tops 1, 2, 3, etc., for the rows; at the left-hand side number in the same manner for the trees in the row. As the squares stand for trees, they must be marked; they may be large enough to write in the name, or some understood abbreviation of it; as, "Bal.," for Baldwin Apple; "D. A.," for Duchesse d'Angouleme Pear, and so on. Or where the varieties are not very numerous, each may have a number; let No. 1, wherever it may occur, stand for Early Harvest Apple, or for Bartlett Pear. Either method is simple and easily carried out. If one would know the name of the 8th tree in the 4th row, he has only to run down on the 4th row of squares until he meets the 8th row on the side, and there he should find a sign to tell him the name of the tree. If one must use labels upon trees and shrubs, the simplest we have found is sheet-zinc, cut in the shape of a long triangle. Let it be 6 or 8 inches long, an inch at the broad end, and taper to a point. Write upon it, near the large end, with a common lead-pencil; coil the small end around a twig; it will expand without injuring the tree, and last for 20 or more years.

### Injuring the Asparagus Bed.

Much harm may be done by continuing the cutting too long. The fact that shoots continue to be produced, should not tempt us to appropriate all that grow. The shoots we have been enjoying this season all came from strong buds, formed at the crown of the root last summer. If we want a similar crop next spring, we must give the plants a chance to prepare for it. This production of new shoots as fast as others have been cut, has more or less exhausted the plant. It can only recover by the help of the green tops. Allow these to grow, and they will not only repair damages, but prepare a stock of buds to afford new shoots for next year. Near New York City the cutting stops early in June, the usual rule being to cease when early peas are ready.—In this country it is customary to cover the bed, before the ground freezes, with coarse manure; in spring the coarse stuff is raked off and the fine portions forked into the surface, taking care to not injure the roots. Some English growers have found it beneficial to apply manure dressing as soon as the cutting is over. Nitrate of Soda, dissolved in plenty of water, and applied, has given most excellent results, and some advise using as much as 2 lbs. to the square yard. This seems to us rather heavy, and we advise to experiment at first with half that quantity. Inland, beyond the influence of the sea, good results have followed the application of salt, not to exceed 5 bushels to the acre. The weeds which start in the bed should be cut away with the hoe until the

plants get large enough to shade the soil, when the pulling up of any large weed that may appear in the ground will be all the care the crop required.

### Provide the Sweet Herbs.

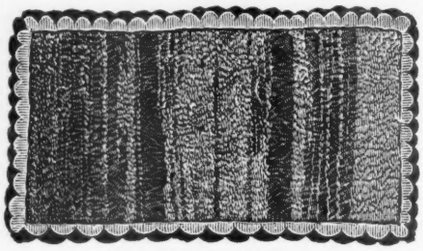
There are many things that are not food in themselves that help give a pleasing variety to foods; these are classed under the general term of condiments. These may be mere flavorings, or may be added to help the digestion. Thus the Mexican lives largely upon *frigoles* (pronounced *free-ho-lees*), the common bean of the country, which is present at every meal of the richest, as well as forming often the sole food of the poorest. These are made to form a great variety by the seasoning; they are dressed with green pepper or red, with cheese or with garlic, and in other ways. With us the use of condiments is not a necessity; they are employed to give a pleasant flavor to articles of food. The plants called Sweet Herbs, comprise Sage, Thyme, Summer Savory, and Sweet Marjorams—sometimes Sweet Basil is added to the list, and Parsley, used mostly in the green state, may be classed here. A bed or corner of the garden may be used to raise the young plants, which can be set out after early vegetables are off. They are best treated as annuals, though Sage and Thyme will live longer than one year. They grow most luxuriantly in late summer. The plants should be cut when in bloom, tied in small bunches, and hung up to dry; they may be preserved in this state, or when quite dry be rubbed with the hands into a coarse powder, to be preserved in bottles in a convenient form.

### Plants for Pickles.

A correspondent asks us to give a list of the plants used for pickles. To do this, we should be obliged to enumerate almost every vegetable that is grown, for nearly every one that will serve as a vehicle for vinegar, has been used for the purpose. The universal pickle is the Cucumber, and is used when the size of the little finger, up to nearly table size. Our favorite pickle is the Martynia, which should be sown this month, the pods of which, taken early enough, make one of the best pickles. Nasturtiums, or Indian Cress, are grown for the purpose. These may be sown now, and if given some brush to run upon, will give an abundance of their peppery, unripe fruits. Peppers may be set out this month; the Squash-peppers, with thick flesh, being pickled by themselves, and the large Sweet Mountain kind, used for stuffing. Besides those plants grown especially for pickles, many others are used, such as String-Beans, Cauliflowers, Melons, when unripe, Onions, Cabbages, and Green Tomatoes. Over-ripe Cucumbers are much used for sweet pickles. An excellent pickle may be made with cabbage, onions, cucumbers, and green tomatoes, about equal parts, a smaller proportion of green peppers, and after chopping and mixing all together, treating as sweet pickle. We hope to say something in season about the manner of preparing the pickles, and of the method of pickling Martynias.

### Inexpensive Home-Made Mats.

A firm, durable mat, of any size desired, more or less ornamental, and quite inexpensive, may be made as follows: In a capacious bag placed out of sight in a closet, deposit all good remnants from the family sewing, bits of gay colored flannels, cashmeres, pieces of old woollen coats, pants, etc. From time to time, when too weary for other work, and the eyes are too tired to read, cut these materials into strips, as for rag carpet, and sew them together, and wind in balls. When enough material has accumulated, with large wooden needles, such as are used for knitting shawls, knit these rag strips back and forth into mats of any desired length and width. A variety of effects can be produced by sewing together and winding on separate balls the strips of the same color and knitting them in color bands; or they may be so thoroughly mixed as to give a mottled surface. If the cutting and sewing be done somewhat evenly, the surface of the knitted mat will be quite smooth, and the mat itself firm and lasting. It can be finished with a border of home-made fringe; or with a strip of two shades of cloth cut into scollops, one strip extending a little beyond the other, as seen in the engraving. This is made from a photograph of a mat 15 by 32 inches, which we obtained for this purpose from a lady in whose house we saw quite a variety of them,

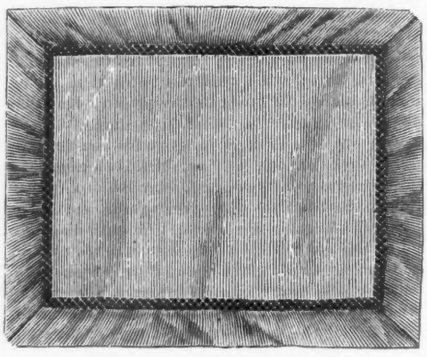


A HOME-MADE FLOOR MAT.

in front of wash-stands, commodes, etc., of different sizes and shadings. We learned that she adds one or two each year, without any real loss of valuable time, or any expense. Some of these mats, after being long used, appeared as good as new.

### An Economical Table Cover.

By the following method a simple, cheap, and yet very pretty cover for a table or stand may be quickly made. The engraving herewith is photographed from one of these covers that we borrowed from a lady who has several of them of her own make, which attracted our attention. A heavy double-faced canton flannel is now manufactured, in a variety of colors, having the nap on both sides, and it is on sale generally. Either this or the single-faced can be used, but the double-faced is preferable on account



A CHEAP AND PRETTY TABLE COVER.

of its extra thickness. The shade can be selected to match the furniture. When cut to a suitable size, it is bordered with a contrasting shade of the same material of any desired width. But this is best made of the single nap flannel, as the double would be a little clumsy. The border is cut of double width and folded so as to leave the fold for the outside edge, and stitched on. To cover the seam, sew on a strip of velvet or velveteen with cross or feather stitch of filoncelle, of contrasting shade; gold is preferable. This comes in all colors and costs but little, and each thread can be split into two or three threads.

### Drinking in the Hay-Field.

Men in health perspire freely when vigorously at work on warm days. Very heavy sweating may sometimes arise from weakness; a dry skin may indicate disorder. Evaporation from the surface carries off heat and keeps the body cool. A larger supply of drinking water is required for the warm haying and harvest days, but much less than is commonly supposed. Half a pint of water, sipped slowly, will assuage thirst much more effectively than a quart gulped down. As fully explained in the chapter on "Catching Cold" (in December No.), a different temperature in two adjacent portions of the body produces congestion. A pint of cold fluid of any kind, thrown into the stomach, may result in more or less congestion; serious illness, and not unfrequently deaths, arise from this cause. If ice-water is taken at any time, it should always be swallowed so slowly that the stomach can warm each gill before another is received.

As to the kinds of drink, the positive teachings of medical science, and experience, indicate that pure water is by far the best fluid for assuaging thirst, and supplying the wants of the system. Beers, ales, sweetened drinks, or any fluid that contains material that must be digested, are a tax upon the stomach, and tend to disorder the system. If taken at all, it should be only *with* other food. Pure water is absorbed at once into the blood, and is carried directly to those parts of the body where it is needed. If the water is bad, it may usually be corrected by the addition of a little ginger, or ginger extract; too much of this produces constipation; but on this account it may be used more freely in looseness of the bowels. All alcoholic drinks are unhealthful for one in active exercise. They stimulate increased effort—effort beyond one's natural strength—and unnatural exhaustion inevitably follows. Just so far as any one raises himself above a normal condition by alcoholic stimulants, just so far below this condition will he surely sink a few hours after, and the elevating and depressing operation wears upon and disorganizes the machinery of the body.

### The Late Planting of Corn.

There is quite a difference in the practice of farmers in the time of planting their field corn. In the Eastern States some begin to plant the last of April or early in May. Of course the corn is a long time in coming up, some of it rots and has to be planted over, is more liable to be pulled by crows and other birds, and the ground requires more cultivation to keep down the grass that gets a good start in May. With the varieties of corn that mature in a hundred days or less, there is no need of this early planting, but a possible gain in waiting for summer to grow this tropical crop. One of the best farmers of our acquaintance plants corn on the 6th day of June, or as near that date as possible, and has followed the practice with uniform success for many years. His ground of course is heavily manured, and thoroughly worked beforehand. The corn is up in about a week, and is cultivated soon after. The ground is warm, well drained, and the plant pushes along rapidly to maturity. He claims for his practice that he gets as good corn, and corn fodder, as the early planting would give him, while he saves labor, and avoids the danger of the seed rotting in cold wet soil.

### Feeding Experiments With Hay.

Our readers will be greatly obliged to Prof. Jordan for his interesting statement (p. 249) of the results of his own and other experiments on the amounts, composition, and respective values of hay cut at different periods of growth. As Prof. Jordan says, however, in addition to weighings and analyses of the produce, more feeding trials are needed to settle the question. Mr. J. W. Sanborn, Farm Superintendent of the New Hampshire Agricultural College, to whom Prof. Jordan refers, has recently been engaged in feeding experiments with hay cut at different periods of growth. His first results (not yet published), which we understand have been supported by further trials, favor a somewhat later cutting of grass than the experiments referred to by Prof. Jordan would lead us to think most profitable. In short, to cut hay during blossom, but at the full blossom, or a little later, seems to be the best period according to Mr. Sanborn's experiments.

## Some Apple Insects.

"Why do you say so much about insects?" some may ask. The question shows that the querist has not reached the proper state of mind to be a successful fruit-grower. Unless one accepts the fact, that he must keep up a constant fight with

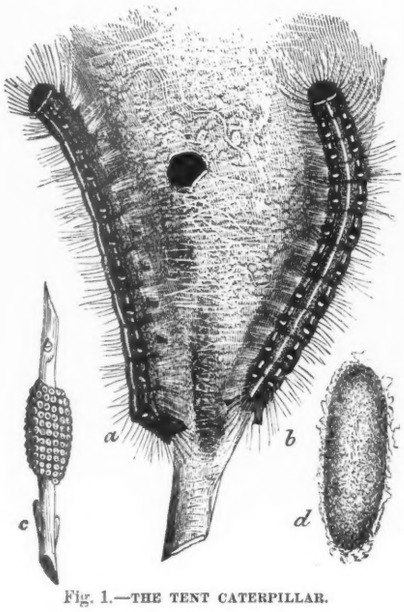



Fig. 1.—THE TENT CATERPILLAR.

insects, he will not have much "luck" with fruit, whether small fruits or those of the orchard. With respect to insects, endeavor to interest in, and secure the co-operation of the neighbors. One working by himself can do much, but vastly less than when his neighbors work with him to the same end. If there were a gang of fruit thieves in the vicinity, the neighbors would at once unite to get rid of them. Thousands of small fruit thieves, the insects, are always committing depredations, and it will *pay* to unite against them. Nowhere is the wisdom of the injunction, "Resist Beginnings," more strikingly shown than in dealing with insects. A single female insect killed now, will prevent the birth of myriads. It is not necessary that every fruit-grower should be a trained entomologist, but he should know all his insect enemies at sight, and understand their life-history, know their different stages and mode of living, that he may most effectually destroy them.

THE TENT CATERPILLAR.—There is more than one, but we now refer to that often called *the* caterpillar of the orchard, and which, if left unmolested, soon strips the leaves from the trees. While this is one of the most destructive of the

Fig. 2.—THE MOTH.

orchard insects, it is also one of the most easily subdued. The clusters of its eggs, *c*, in fig. 1, are always near the ends of the twigs, and may be readily seen and removed at any time when the tree is leafless. It is, of course, too late for this now, as the caterpillars have hatched, and have already begun their webs, or nests. They commence to spin at once, placing their "tents" at the forks of the small branches. All the caterpillars from one cluster of eggs join in weaving the web, in which they live together, and increase its size as their growth demands. The tents are not only conspicuous signals that the enemy has encamped, but they afford a ready trap for its destruction. One writer has said that the presence of these in the trees is a sign that a careless cultivator lives on the place. The caterpillars rarely leave the web before 9 o'clock in the morning, and are back again in the evening. Hence one has only to destroy the nest when the occupants are "at home," and make an end of them. The many contrivances in the way of swabs for applying various liquids, and for burning the tents, are of no use. All one needs is his hand, gloved, if desired, and with one grasp the whole colony may be removed, thrown upon the ground, and trampled upon. The engraving shows the caterpillar at *a*, in side view, and at *b*, back view; the colors being varied with white, black, blue, and reddish. They get their full growth in four to six weeks, then leave the tree, and find some fence corner or other hiding place, where they spin a yellow cocoon, (*d*, in fig. 1). In about three weeks, the perfect insect comes forth, a moth (fig. 2), which is generally dull yellowish, or reddish-brown. Its front wings are crossed by two whitish lines, the space between these being usually of lighter color than the rest of the wing. The moth does not feed, the sole purpose of the female being to provide eggs for next year's progeny. The insect is especially fond of the Wild Black Cherry; and while some have advised planting this tree to attract the moth away from the apple trees, others regard it as a nuisance, as it becomes a breeding place for the insects.

THE APPLE WORM, OR CODLING MOTH.—Figure 3 gives a glance at the life-history of this most destructive insect. Soon after the fruit is set, a little brown moth lays one egg at its blossom end; this soon hatches; the worm enters the apple and lives upon its substance, depositing an abundance of excrement. In three weeks the worm makes its growth, and, if the apple does not drop, leaves the fruit, goes down the tree, finds a crevice in the bark, and makes a cocoon. In 10 or 15 days another crop of moths issues, to re-stock the fruit with worms, which proceed in the same manner as

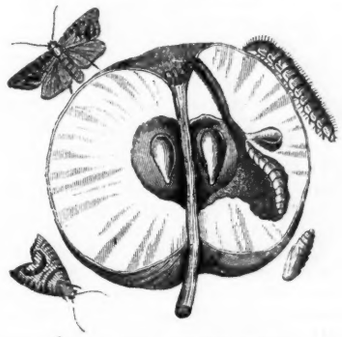


Fig. 3.—THE CODLING MOTH.

before. The worms that come out of the fallen fruit, if the ground is clear of rubbish, go to the tree, crawl up the trunk and find a place to spin. This last brood do not leave their cocoons until the following spring. The remedy is simple and effective. Place around the trunk of the tree a strip of old carpet or other coarse woollen fabric, about 6 inches wide, fasten it with a few tacks; the worms, finding this a convenient place, will take shelter under it and spin. Every 10 days these cloths are to be removed and the insects crushed. Where there are many cloths, it is expeditious to run them through a clothes-wringer and then replace. These traps should be set about the middle of June, and be continued until the last of August.

## Raise Your Own Seed Corn.

The time to plan for this is now while the corn crop is going in, or under cultivation. It is a reasonable thing to say that a tenth may be added to the yield of corn on any farm by using seed that has been carefully raised for the purpose. Not much attention is paid to the selection of seed by the average farmer. The man who reads and thinks about the seed used for his crops, selects the best he can find in his crib at planting time, and finds that this pays. It pays still better to select ears from the field the fall previous to planting, from stalks that bear two or more perfect ears. A better practice still is to plant the corn for seed in a small patch by itself, and guard it against all the accidents that must attend its growth and cultivation in the larger field. The ground should be specially prepared for this purpose, and made rich enough to supply all the wants of the plant. It should be thoroughly cultivated every two or three weeks, until the grain is full in the ear. Like produces like, in corn as in cattle, and the silk and the tassel are both factors in giving character to the ear. Though the male and female blossoms in the corn are upon the same plant, there is no security for self fertilization when any plant is grown in the open field. The pollen from a barren stalk may fall upon the ear grown from selected seed, and this ear may be imperfect, or be a cob with little or no corn on it. If the ears selected for seed have been fertilized by a nubbin stalk, the nubbin imperfection goes down to posterity. In a small piece of corn planted remote from other corn we may guard against the accidents of promiscuous fertilization, and secure, as far as possible, corn with a good pedigree, and perfect after its kind. All barren stalks should be cut out, and no more stalks be left in the hill than will give perfect ears. If the owner will select from this patch the earliest and best formed ears, for his seed, and follow up this practice for a few years, he will have a new variety and a large increase in his yield of corn.

## State Bounties for the Increase of Forests.

There can be no doubt of the fact, that in most of our older States the forests have been cut off far beyond the requirements of good husbandry. One-fifth of the land, at least, should be covered with wood, to afford protection against the sweep of the winds; to prevent the springs and streams from drying up; to equalize the rain-fall; and to secure good crops upon the soil that is under the plow. A forest to furnish a home for birds that keep down the multiplication of insects destructive to crops, is of far more value than most people have any idea of. Notwithstanding the introduction of coal, and its almost universal use for fuel in our cities and villages along the sea-coast and the line of our railroads, the greater number of our people are so located as to necessarily use only wood for fuel. There is an ever-increasing demand upon our forests for lumber, for ship-building, for railroad-ties, and many other uses. The forests are waning; the streams are reduced in volume; the mountains and high lands are stripped of their wood; and severe drouths are growing more frequent. We are suffering to-day in the high price of beef, of dairy products, and of all the grains, in consequence of the prolonged drouth of last season. This matter is often discussed or alluded to in our Agricultural and other journals, but little has been done to remedy the evil. It affects whole States, the Eastern and Middle, as well as Western, and is already a question of national concern. Our prosperity as a people depends upon the conservation and increase of our forests. One of the best things possible in our circumstances, is the offering of bounties to individuals by our State Legislatures for the planting of forest trees upon the elevated, the rocky, and exhausted portions of our farms. No inconsiderable portions of these farms are so poor, that they do not produce enough to pay the taxes upon them. If they were exempted from taxation, or if a small bounty were offered for planting them with forest trees, the owners would have an inducement to undertake this much needed improvement, and in a few years it would become the fashion to transplant trees, or to sow the seeds upon the waste land of our farms. In many cases, the young trees for transplanting can be found upon the farm. In clearing up a piece of neglected land this spring, we have been surprised to see the large number of young sugar maples, white ash, elm, butternut, dogwood, and soft maple, from one to five years old, that were growing along the brook-side and under the walls, in the best possible condition to transplant.

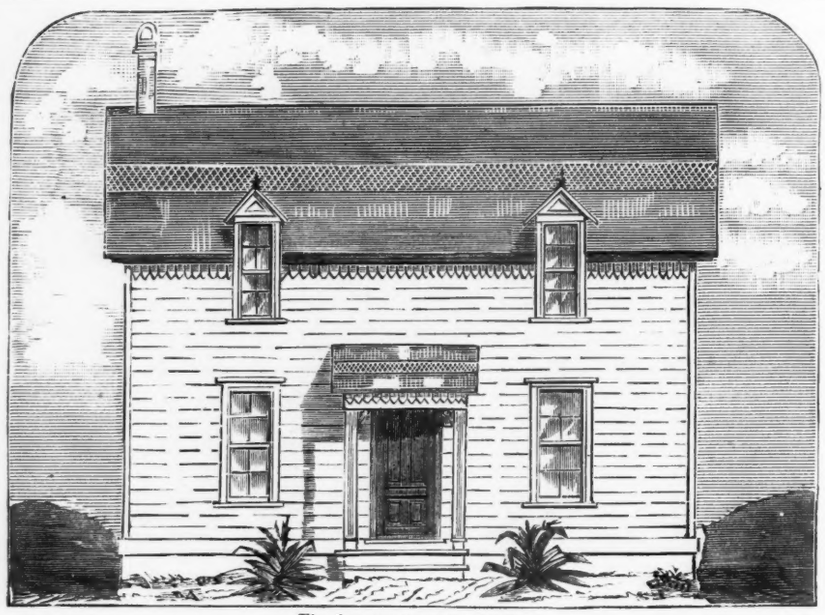


Fig. 1.—FRONT ELEVATION.

## Country House, Costing $600 to $800.

**(Cost as here Described, $700.)**

CLASS I.—SECOND PRIZE.—BY A. C. SWARTZ, GIRARD, KAN.

The envelope "Motto" that designated this plan was: "Poor Man's Dwelling." Mr. Swartz, who claims to be a "practical farmer," took the first prize in the second class, for a dwelling costing $1,900, which was described in the *American Agriculturist* for April last.—The estimates for this house, as given below, make the complete cost just $700. To the elevation plans, as received, we have added some ornamentation, such as laying part of the shingles out of the uniform plain courses; putting the perpendicular pieces with rounded ends upon the cornices, and a few extra moldings and trimmings. The additional cost of all these will not exceed $20, or at most $25, but they very greatly increase the beauty of the architectural appearance, we think.—It is an almost universal

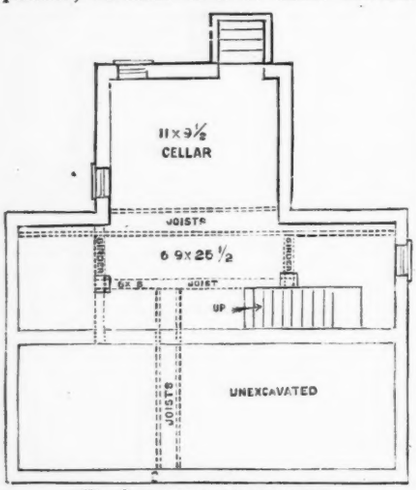



Fig. 3.—CELLAR OR BASEMENT.

fault with at least nine-tenths of all our present country houses, that they have the plainest possible outlines, and no effort is made to give variety, which can be done at very trifling cost. Simply using a few feet more of lumber to enlarge the size of the outside caps and casings of the windows, would materially improve the looks of a great many plain houses. A neat, tasteful dwelling can be constructed at about the same expense as one without any character of its own. Twenty-five to fifty dollars extra on the house itself, with as much more on the surroundings—the grounds and fences—may be so expended as to raise the salable value of a farm many hundreds of dollars. It is important, however, to avoid putting on finical, fanciful ornamentation which is without any special design or harmony, and often offensive to the eye.—The Judges, in selecting this plan for the second prize, on account of the general convenience of the internal arrangements and other features, appended to their award the following criticism, which is an important one: "A house of this cost—indeed, every house—should have some kind of an entry hall, to break the force of winds, and not allow them to directly penetrate the living room whenever the outside door is opened."—The engravings showing the front and side elevations and the cellar, and first and second story floor plans, together with the detailed account of the timber and lumber required, give sufficiently full information to the ordinary builder or carpenter to enable him to construct the whole house, and we need not give much space to a minute description.—The **Elevations** (figs. 1 and 2,) show that little expense is needed for outside ornaments, as the aim is to adapt the cost to those having very moderate means. Every one constructing a house on this general plan will, of course, with the aid of the carpenter, make any desired modifications in the simple parts that constitute the chief ornamentation. In this, as in all other country house plans, we recommend the addition of a covered Veranda along one side, if not on two sides, whenever the small additional expense can possibly be afforded.—The outside covering is of inch boards, put on horizontally, planed outside. The jointing is not specified. We suppose it to be the "Novelty Siding" (fig. 6). The estimates provide for no sheathing under the boarding, of tarred or roofing paper. This should never be omitted, and the cost for a house of this size is only a few dollars.

**Basement, or Cellar** (fig. 3).—A part of this is left unexcavated. This can be done at any subsequent time, but the old advice given by a farmer to his sons, "Always make your cellar as large as your house," is useful. The cellar room here provided may be ample on a new farm, where only grain and grass will be grown at first, but plenty of cellar room is always handy. A dry cellar under a house conduces to healthfulness. It is always best to place the first floor 2, 3, or 4 feet above the general ground surface, and use the cellar earth, and more if needed, to bank up against the walls in very cold localities, and always to have the ground graded downward from the house outward, so as to quickly convey falling rain away. If the cellar walls are warm enough to keep out frost, it is better to have them extend at least two feet above the graded earth, that windows may admit light to the cellar. If necessary, a temporary banking-up against the walls in winter, may be provided in autumn and be removed in spring.

**First Story** (fig. 4).—Hight, 8½ feet. The plan is considered a convenient one. Mr. Swartz writes: "....If a fire is desired in the first story bed-room, let the Entrance and the window at its left change places; change the position of the door to the bed-room, and move the chimney over to the wall separating the sitting-room and bed-room, with a fire-place or stove-pipe entrance on each side."...."The entrance from the bed-room to the stairway can be omitted, but is very convenient, especially in case of sickness...." [It will be noticed that the three doors at the foot of the stairs afford a private passage-way from any one room to another, and also from any room to the chamber.] "...The Kitchen Closet can be arranged as a bath-room, if desired...." This closet can be spared, as there is a fair-sized Pantry; but a part at least of the Sitting Room Closet would be required to make the bath-room large enough, unless it extended a little into the corner of the Kitchen.—The specifications and the estimates of cost call for three-coat plastering of the first story rooms.

Fig. 6. NOVELTY SIDING.

**Second Story** (fig. 5).—The hight of the rooms along the outside walls is 4½ feet. "The partition walls are board or plank, and the rooms are ceiled throughout...." There are four bed-rooms, with a large space around the stairs for

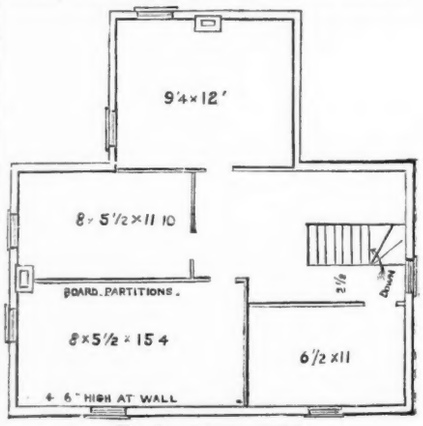



Fig. 5.—SECOND STORY.

storage, which may be utilized for a temporary bed on extra occasions, as when there may be additional help employed at harvest time. The smaller

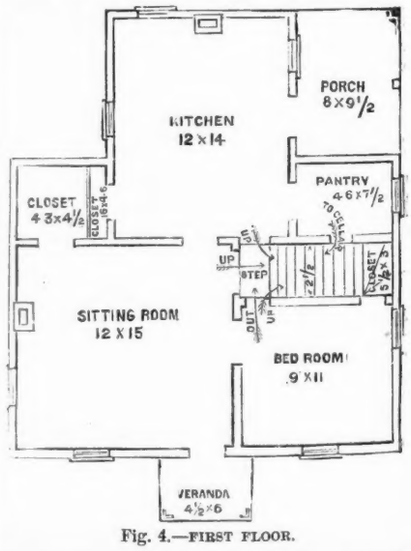



Fig. 4.—FIRST FLOOR.

front room can not be warmed. If the change of chimney, noted above, be made to heat the lower bed-room, this upper room and the larger front one

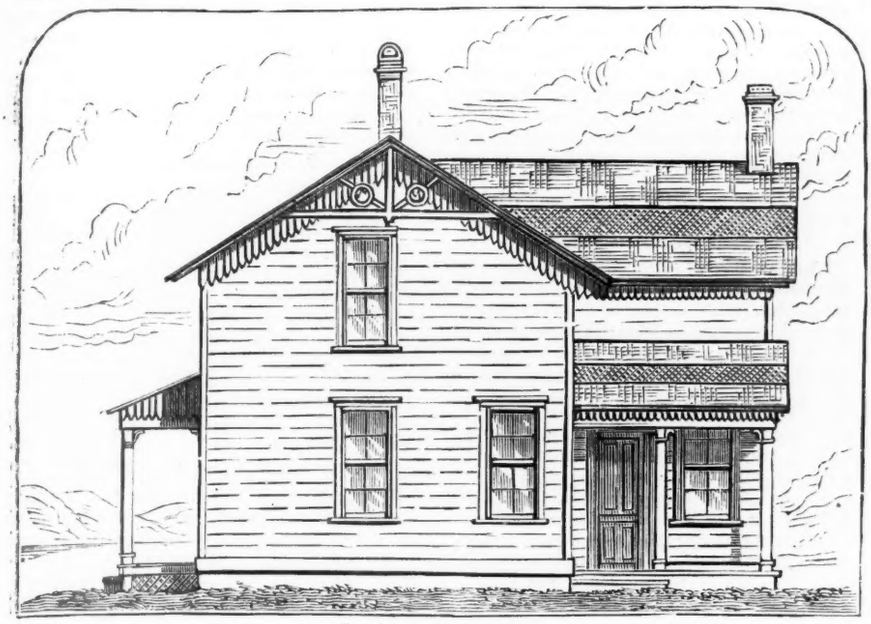


Fig. 2.—SIDE ELEVATION.

can each have a small stove; the rear main story bed-room can be warmed, if needed, by carrying a stove-pipe through the partition to the rear chimney.

**Cost.**—"The materials and workmanship are to be first-class; the finishing plain throughout. Common labor is reckoned at $1 to $1.25 per day; skilled labor, $1.50 to $2.00."—Labor is now higher than these figures, in most parts of the country.

**Estimate of Materials.**

| *Sills, Girders, Posts.* | *Studding, Rafters, Etc.* |
|---|---|
| 2 pieces, 6x6 in.x14 ft., 84 ft. | 54 pieces, 2x4 in.x 9 ft., 324 ft. |
| 2 pieces, 6x8 in.x14 ft., 112 ft. | 4 pieces, 2x4 in.x10 ft., 27 ft. |
| 1 piece, 6x8 in.x15 ft., 60 ft. | 34 pieces, 2x4 in.x12 ft., 272 ft. |
| 1 piece, 6x8 in.x16 ft., 64 ft. | 48 pieces, 2x4 in.x14 ft., 448 ft. |
| 4 pieces, 6x8 in.x18 ft., 288 ft. | 25 pieces, 2x4 in.x16 ft., 167 ft. |
| 608 ft. | 6 pieces, 2x4 in.x18 ft., 72 ft. |
| | 7 pieces, 2x4 in.x20 ft., 93 ft. |
| | 1,403 ft. |

| *Joists.* | |
|---|---|
| 8 pieces, 2x8 in.x 8 ft., 85 ft. | 28 pieces, 2x8 in.x13 ft., 485 ft. |
| 15 pieces, 2x8 in.x10 ft., 200 ft. | 8 pieces, 2x8 in.x15 ft., 160 ft. |
| | 930 ft. |

| | |
|---|---|
| Total, 2,941 feet, @ $22 per 1,000 ft. | $64.80 |
| 250 feet of 2-inch Plank, @ $25.00 | $ 6.25 |
| 800 feet of 1-inch Boards, @ $30.00 | 24.00 |
| 700 feet of 1-inch Boards, @ $22.00 | 15.40 |
| 300 feet of 1-inch Boards, @ $20.00 | 6.00 |
| Shingling, Lath, and Cellar Beams, 109 pieces, 1x4 in. x16 ft., 550 feet, @ $18 per M. | 9.90 |
| Flooring, 1,250 feet, @ $27.50 per M | 34.38 |
| Board Partitions, 384 feet, @ $23.50 per M | 9.02 |
| Ceiling Boards (⅜ths-inch), 1,330 feet, @ $20 per M | 26.60 |
| Shingles, 9,000, @ $2 85 per M | 25 65 |
| Weather Boarding, 1,540 feet, @ $22.00 | 33.88 |
| 3 Sashes for Cellar, @ 60 cents each | 1.80 |
| 15 Window Sashes, @ $1.80 each | 27.00 |
| 2 Outside Doors, @ $2 each | 4.00 |
| 3 Doors, @ $1.50 each | 4.50 |
| 7 Doors, @ $1 each | 7.00 |
| 4 Batten Doors, @ 85 cents each | 3.40 |
| Cellar Doors | 2.00 |
| 73 Yards Excavation, @ 18 cents | 13.14 |
| 738 Feet Stone Work, @ 6 cents | 44.28 |
| 1,100 Bricks in Chimneys, @ $11.50 | 12.65 |
| 187 Yards Plastering, complete, @ 25 cents | 46.75 |
| *Hardware, etc.*—2 Mortise Locks, $2.00; 2 Mortise Locks, $1 60;—12 Rim Locks, $3.60;—300 pounds Nails, $15.00;—64 feet Spouting, $6.40;—5 pairs Hinges, 90 cents;—12 pairs Hangers, $1.50;—2 pairs Strap Hinges, 30 cents;—6 pairs Strap Hinges, 50 cents;—Wire Screen for Pantry, 95 cents;—2 Cupboard Door Springs, 20 cents;—3 dozen Clothes Hooks, 90 cents | 33.85 |
| Painting, $60.00; Carpenter Work, $150.00 | 210.00 |
| Sundry Incidentals | 33.75 |
| Cost of Building complete | $700.00 |

**Notes on House Plan in May Number.**—We are promised a Model of the Furnace soon, for making engravings and description. Mrs. Burr writes: "A large trap is placed where the waste water enters the drain-pipe, another under the sink, and one under the bath-tub, and under each wash-bowl, to prevent the return of odors or foul air to the house. As the family consists of only two grown persons and a boy of four, a bath-tub on the first floor was deemed sufficient. Had there been two or three more in the family, a bath-tub would have been put on the second floor. The picture does not look as well as the house, but that, of course, was the fault of my poor drawing sent. There is a wall and door between the Kitchen and Pantry not shown in fig. 2....All sills, plates, girths, and corner-posts, were hewed from timber cut on the farm, and the value reckoned. There are four large chestnut piers, or posts, resting on stones imbedded in the bottom of the cellar...."

**Special Notices** to Inquirers and Contributors.—Quite a number send us partial plans and descriptions—sometimes only a general statement of their wants and desires—and ask us to publish, or send them, full plans, specifications, cost, etc., of such or such a house. It is impossible to do so. It requires two or three days, often more, to examine, prepare well, and execute suitable drawings for engravers, for any one good house-plan article, and it costs quite a sum to furnish the engravings alone.—We return thanks to those who, from time to time, send us drawings and plans for publication. These are kept and examined as we have time, and if valuable are preserved to be drawn upon in the future, as occasion may serve.

## Bee Notes for June.

In all the Northern States, June is the great honey month. The bees are already bringing in this delicious product from the raspberry, the white clover and alsike clover, and before the month ends, the basswood bloom will bring the bees to the great honey harvest of the year. Every bee-keeper should ask and answer for himself:

WHAT SHALL THE HARVEST BE?—Shall we work our apiaries for comb-honey, or plan to get all, or most of it, as extracted honey? This question was recently asked in a meeting of one of the most wide-awake societies of the country, and all but one answered: work wholly for extracted honey. The unanimous opinion was, that nearly double the weight of honey would be thus obtained, which readily sells at 12½ cents per lb., or more, while the nicest comb-honey is only worth 20 cents, the general price being 18 cents. And this is not merely local opinion. Three-fourths of those at the National Convention last autumn, follow this method.—The extracted honey is intrinsically as good as the comb-honey, and is more nutritious. The wax of the comb is neither easily digested nor nutritious. If there is not a present market for extracted honey, one can be readily created.

THE HONEY EXTRACTOR is coming into general use, and justly so. It is a German invention, is comparatively simple, and not very expensive, and by means of this the honey is thrown from the combs by centrifugal force, when they are returned to the hive to be filled again. If taken from the hive before they are capped over, it saves work and time to the bees. If not removed for extracting before they are capped, the caps are cut off with a sharp knife run over the comb. There are various machines now made. They should be of metal, run with gearing, be light and strong, and so made that only the basket carrying the combs is revolved, leaving the can or reservoir stationary. They should be large enough to leave space below the basket for at least 100 lbs. of honey.

HIVE FOR EXTRACTOR.—If we are to work simply for extracted honey, the hive may be very simple, and either one story, or two. I think better results are secured from a one-story hive, though a two-story one looks better. The late Mr. Quinby, who had no superior as a practical apiarist, once offered $50 for a non-swarming hive. By a faithful use of the Extractor, almost any hive becomes a non-swarmer—a point in favor of extracting.

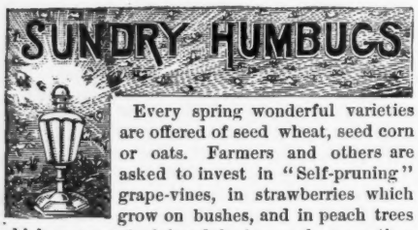
HOW AND WHEN TO EXTRACT HONEY.—When necessary to uncap some of the cells, uncapping knives, made with a bevelled edge, are the best. In extracting during the honey season, it is never advisable to wait for the bees to cap the honey. If the honey is kept in a dry, warm room, and it should be kept in no other, there will be no danger from souring, even if the honey is extracted when quite thin. We have frequently extracted during the honey season as often as every other day, and with no bad results. We would not dare do this, if the honey must be kept in a cool room, especially a damp one. The best place to keep extracted honey is a room that is warmed up to 70 or 80 degrees Fahrenheit, each day, when the sun shines hot. Put the honey in open barrels or cans; cover with cloth that will keep out the dust, but not prevent evaporation. In extracting, care should be taken not to take away so much as to starve the bees the coming winter. The bees can be fed, but that may be neglected, and so honey enough should be reserved. Honey may be extracted from combs with brood, and not throw out the brood; this requires a very even motion. A sharp, sudden jerk will remove most of the bees from the comb; the remainder may be removed by using a bunch of asparagus, a pine twig, or a quill from the wing of a goose or turkey.

COMB-HONEY.—If the market makes it more desirable to work for comb-honey, sections should be used. Those 4½ inches square and holding one pound, are the most profitable as they find a ready sale. The sections may be placed in a crate above the brood-chamber, or may be suspended in the body of the hive in a wide frame. Sometimes the bees are slow to go into the sections above the hive. In this case it is quite desirable to have the sections so arranged that they may be readily transferred from the body of the hive to the crate above. They are put into the body of the hive until the bees commence to work in them, and then are removed to the crate above where the bees will continue to work. Putting a small piece of uncapped drone-brood into the sections above will sometimes induce the bees to commence work there. As the brood hatches out, the bees will fill the cells with honey, and no harm is done.

TO SECURE A GOOD YIELD of comb-honey, the colonies must be strong, and to have them thus, and not be bothered with swarming, requires skill and care. A much more skilful bee-keeper is needed to obtain the best results with comb-honey, than to procure the best harvest of extracted honey.

**Worse and Worse Weeds.**—Sometime ago we mentioned the fact that the flowers of the Ox-Eye Daisy were in such demand by the city florists, that several persons were engaged in forcing them, in order to get them into bloom in early spring, at which time they were sold at a price sufficiently high to pay for the labor expended. When the plants came into flower in the fields, they were offered at every street corner, and were not much in demand. Later, we have seen in the florists' windows, clusters of the flowers of a still worse weed, the Toad-flax (*Linaria vulgaris*), also called "Butter and Eggs," and in some localities "Ramsted Weed." This is now justly regarded as one of the worst weeds of our farms, yet the writer can

recollect when it was a favorite garden plant. Clusters of this were generally offered by the Broadway florists. Another weed appeared later in the windows, and noticeable from the fact that it is a native. The two plants mentioned above, are introduced from abroad, as are the great majority of the weeds of our fields and gardens, but in *Rudbeckia hirta*, the "Thorny cone-flower," we have an undeniable native. This is supposed to have been brought from the West in baled hay; at all events it is now thoroughly distributed throughout the meadows and pastures of the Eastern States; it has come to stay, and makes itself more thoroughly at home from year to year. Like the Ox-Eye Daisy, it belongs to the great Sunflower Family. It is much larger and coarser than that; its flowers are much larger, with yellow rays, and the central portion, or disk, of so dark a purple that it is almost black. The stems and foliage are very coarse and beset with rough hairs. To see this miserable weed, the increase of which we have watched with dismay, offered for sale, and to see large clusters of it in the belts of ladies who had purchased it, produced a sensation far from pleasing. It will be curious to watch what effect this sudden bringing into favor of some of our most pernicious weeds will have upon the agriculture of the country.




Every spring wonderful varieties are offered of seed wheat, seed corn or oats. Farmers and others are asked to invest in "Self-pruning" grape-vines, in strawberries which grow on bushes, and in peach trees which can not be injured by borers because they are grafted on the "French Willow." Where are all these wonders that have been offered with such a flourish at any time during the last twenty years? Were the claims made for these well founded, our grain product, per acre, should have been doubled, while statistics show that it has really diminished. What has been true in the past, will also prove true with all the extravagant claims now made. We would by no means say that there may not be improvement in grains as well as in other plants, but real improvement does not take such enormous leaps as to double the yields of corn or wheat. When extravagant and improbable claims are made, we are safe in letting such wonderful things alone, no matter how strong the asserted claims, or how many recommendations may be shown from persons with names suspiciously resembling well-known trustworthy individuals. As a rule, such names are fictitious.

**We went where he was, and he wasn't there.**

In a circular received from the West, one of the strongest and most effective recommendations of an article was signed by the name of a distinguished citizen of high repute in New York City, but with a slight change in the initials, to avoid forgery outright. His place of business was given on Broadway. We went to call upon him and see what it all meant. The number given took us to Trinity Church grave-yard, where the street numbers are omitted. The sexton told us, "there might be some such person buried there, but it must have been a good while ago, and he guessed he'd gone out of business." This is a common dodge of the swindlers, and with some quack medicine dealers, who furnish such long lists of cured persons.

**Secret Insect Remedies.**

Farmers, as a general thing, have not had an opportunity to learn much about insects, and a number have been victimized by offers of remedies for their destruction. One chap has picked up many dollars in one of the fruit-growing localities by selling some stuff to be laid in the crotch of the tree to keep out borers. Upon examination, the medicine proved to be only a very poor, dark-colored soap, made into rolls and wrapped in a showy label. The recipe man has been around again in some Western States. The recipe for borers costs $5—a good price for being told to mix a pint of Turpentine with a gallon of Soft-Soap, and rub the body of the tree with it. This applied to the tree would no doubt, as long as it lasted, prevent the female borer from laying her eggs. But the recipe says: "It penetrates into the sap of the tree, and destroys all the insects that subsist upon the sap or on the leaves," which is utter nonsense.

**Some Impossible Things.**

When a maker of imitation jewelry claims that his diamonds are just as good as real ones, as they are quartz crystals covered with a coating of real diamond deposited by electricity, we know that the statement can not be true. His imitation stones may be very good ones, but they are not produced in this manner. One concern makes a great flourish over its imitation diamonds, claiming that they "are produced chemically," and we have no doubt of it. They are a kind of glass; this has to be melted, and as fire of any kind is a very important chemical operation—of course they are "produced chemically;" so is a Johnny-cake. When the Battery man tells us that his "Electro-Medicated Glasses" are produced by heat generated by electricity, and that the glass is "medicated," and that the "chemicals keep the glasses perfectly cold," it is very amusing, and very nonsensical. Some of the materials of which all glass is made, may be used separately as a medicine, and so far as this goes, all glass is "medicated." Glass of every kind is a "chemical" compound, and the use of this high-sounding term is very smart.

**"The Great English Sterling Cutlery Co."**

We have many inquiries as to this. "Sterling" is a term applied to silver, to indicate that it is of the fineness of British coin. In this country the coin consists of one-tenth of alloy; in England, of one-twelfth, and "sterling" refers to silver of that degree of purity. It can only apply to cutlery so far as that is plated with silver. The term is also used to express excellence, and we may speak of a "sterling man," or a "sterling boot-jack." "Sterling" can only, in a figurative sense, be used to describe articles of steel. As to this English company, if it offers Spoons at $1.00 a set, Cake-Baskets at $1.75 each, and so on, probably these prices are as low as they can afford them. If any one orders such articles, supposing that they will get things that are worth any more than the price asked, he has a poor knowledge of human nature and of the principles upon which the business of this world is carried on. A set of spoons for $1.00 is 16⅔ cents each, and if any one expects to get much over the value of a dime in silver on each spoon, he must be very innocent. We would remind all those inconsiderate persons who think they may get gold or silver articles for less than their real value, that there are in every city those who deal in these metals as a business. If any article is offered for $1.00 that is really worth $1.10, they buy it up and have it in the melting-pot very quickly. In silver ware and jewelry, be sure that, whatever the price, it is never offered at less than its real value.

**That "Washing Machine"**

has turned up again. Its career closed in New York soon after our explanation, with an engraving of the "machine," a few years ago, but it now appears in full bloom in Boston, where it is no longer the "United States," but the "New Home Washing Machine," probably so called because it has taken a new home. The circulars (as before, printed upon Postal Cards,) are of a similar tenor (though differently worded) to those formerly sent. The recipient is told that, "being informed that you are favorably known throughout your neighborhood, we have the pleasure of making you the very *liberal offer* found below." Then follows much in praise of the machine, "doing away with all the miseries of wash-day." The "special offer" is on your promise "to show the machine to any five of your lady friends, and send 90c." (It was only 75c. in New York, but washing machines have probably "riz"), the machine will be forwarded with "confidential prices." The "machine," when received by mail, will be found to consist of two rollers fixed to a handle, a contrivance to be used in rubbing clothes upon any wash-board, and in no sense a washing machine, as that term is generally understood.

**A Home-made Incubator**

has been advertised, or rather directions for making one, to be sent for three 3-cent stamps. One of our friends invested his stamps, and sends us the circular he received in return. Directions are given for constructing the affair; how practical they may be can not be told, unless one attempts to follow them, but the nub of the circular is just here. After one has made his incubator, he is informed that he can get "directions for managing it" in a book which contains much other information, by sending $2.00. The same circular also advertises eggs. It seems to be an "advertising" affair all through.

**Mutual Marriage Associations.**

We must answer all inquirers that we do not know that there is any difference in these as to "responsibility." In some States they have been stopped, as they have not complied with the laws regulating insurance companies, and so far as may be seen from the circulars, they are, in principle, insurance concerns. If in a marrying situation and mood, we should prefer to keep the management in our own hands, and save the stamps for family expenses, in preference to employing agents to handle the funds, on a promise of their growing in others' hands.

**Cures by Faith and Imagination.**

Probably most of our readers have heard of the experiment tried by some medical men upon a gentleman in robust health, but who had a pretty lively imagination. Stationing themselves a mile apart along a road which he was to pass, each one meeting him inquired after his welfare, and expressed great solicitude concerning his health, professing to see in his countenance indications of approaching serious illness. He rebuffed the first one with the remark, that "he was never better in his life." But as one after another talked in the same way, he became alarmed, grew dizzy, and before reaching home was thrown into a high fever, which lasted two or three weeks. In another case, a soldier condemned to be shot was reprieved at the last moment. But without informing him of the fact, he was led out and placed before a firing platoon, and saw their guns levelled at him. A dozen men simultaneously fired towards him with blank cartridges, and he actually fell dead through fright. We know a highly respected merchant who is intelligent enough to have carried on a large business, amounting to many hundreds of thousands of dollars, with branches in other cities. Yet he has for many years carried a horse-chestnut in his pantaloons' pocket, in the full belief that it keeps off rheumatism. We could give similar illustrations, almost without number, of the power of faith or imagination. It is this that lies at the foundation of the success of so many medical nostrums. People imagine themselves ailing, and sometimes are so. The venders of these nostrums, by the skilful use of language, and of printers' ink, so captivate the imagination and faith of this class of people, that their inert medicines, or stimulating mixtures made up of cheap whiskey disguised by coloring, and some bitter or slightly nauseous drugs, actually restore them to health—in some cases. But for the darker side, the great amount of good health destroyed by dosing with worse than useless drugs, and the habit of intemperance so often formed by the use of these alcoholic mixtures, frequently dubbed "temperance bitters," we should be less inclined to wage unceasing war upon the whole "patent medicine" business.

**Electricity and the Imagination.**

We conversed the other day with a highly intelligent business man, at the head of one of the largest establishments in the country, who said he was benefited by using an "electrical brush."

We procured one of the same kind and dissected it. It differed from any other good common brush of bristles, in having a fancy back and handle, in which was concealed a bit of steel, rendered magnetic by drawing it on a permanent magnet, or an electro-magnet. There is no possibility of this bit of magnetized steel producing sufficient electrical influence through the bristles to afford the slightest curative effect upon any scalp, or full head of hair—except by imagination. But the shrewd venders of such brushes send along in the box with each brush a small pocket compass. When the metal in the brush handle is brought near the needle of this compass, it attracts or repels it, according to which end of the wire is presented, and the sight of this, with the wonderful cures so strongly set forth by advertisement and circular, actually captivate the imagination and faith of many otherwise intelligent people. They buy and advise their friends to buy these brushes, at much larger prices than equally good brushes sell for when not claimed to be "magnetic." A pocket-knife, or a scissors' blade, or a knitting-needle, especially if magnetized, will have the same effect upon the compass needle as does the loaded brush handle. There is a large variety of batteries, of magnets, of electrical garments, etc., that differ nothing in principle, or in real effect, from the brushes described above. It is a pretty safe rule to reject medical articles, if the words "electrical" or "electricity" be attached to their names. If you wish to pay $3, $5, or $10, for a thing on its own merits, all right, but don't pay extra for having "electricity" added to its name.

## The Latest Fraud upon Farmers.

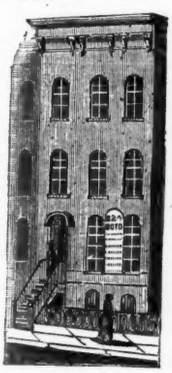
### Bessarabia Corn.—The "New York Agriculturist."—The New York and London Oculist.—Boyd's Galvanic Batteries.

It may be wondered why we put the above all together. We can only answer, in the words of the poet: "All are but parts of one stupendous whole." In the navy, the etiquette is for the younger officers to precede the admiral, so we put the youngest first. Or to take an agricultural view of it, the "Battery" is the root, while the latest development, the "consummate flower" (we say "flower" only figuratively) is "Bessarabian Corn." To begin at the root, the "Battery," we have months ago shown that the thing was a mere toy, and could by no possibility produce electricity (galvanic or other) and could have no curative power. After the "Battery" came the "Medicated Glasses," to which that interesting sheet, the "New York and London Oculist," is in part devoted. Our view of these glasses may be gathered from the "Humbug" article in the present number. Next in ascending this remarkable "Family Tree" we have the "New York Agriculturist." Its "Vol. I. No. 1," came in November last; but though we have watched with "waiting eyes," it has not appeared since. Its leading features are: "The French Detective"; "The Elopement, a Tale of Jealousy and Retribution"; "Baldy, a Story of the Wisconsin River," and other such highly "agricultural" essays. Its chief advertisements are of "Boyd's Galvanic Batteries," "Psychomancy, a Book for Curious People," treating of the "Significance of Dreams," and some things that for sake of decency we omit mentioning. It had some advertisements of people who wanted to marry, one of a "Court Toilet Powder," and one of "Boyd's Medicated Conserves." With such a list of "agricultural advertisements," can it be thought strange that we were anxious to see No. 2? But as it now appears to us, this "New York Agriculturist" was a brilliant design, a stroke of genius. We have often insisted that a fruit should have but one name; we are now convinced that a paper should have but one. Half or more of our correspondents address us as "Dear Agriculturist," dropping the "American." In talking with our friends, we observe that they say "The Agriculturist," and among ourselves, "American" is rarely, if ever, used in speaking of the paper. In view of the fact that the journal is more frequently mentioned by its hosts of readers as "the Agriculturist," and the other fact that (for convenience) it is printed in New York, it is easy to see that when "New York Agriculturist" is named or quoted, a large share of the people of the United States would infer that the *American Agriculturist* was intended. We look upon this, especially since we have seen the use made of it, as a very ingenious dodge. So much for our "New York Agriculturist," of which our one number makes a lonesome appearance, and we wish we could get another, so that we might have "a file" of it. We now come to the full fruition of our family tree:

**The "Bessarabia Corn,"**

the merits of which are set forth in a (yellow) circular by "Wm. F. Fowler & Co., 742 Seventh Avenue, New York City, Dealers in Agricultural Implements, Seeds, etc." The circular is illustrated by a cut of the section of an ear, but with the exception of the fact that the artist has put in a few more rows of kernels than corn usually has, there is nothing remarkable about it. This corn is "Guaranteed to Yield One Hundred Per Cent More to the Acre than the best American Corn with the Same Cultivation." Now that is "talking business." Some inconsiderate person may ask, "Who guarantees this?" The circular says, in full-faced type, "Wm. F. Fowler & Co." "But who are they?" We shall see presently. Of course we at once procured samples of this remarkable corn. There are an unusual number of small and misshapen kernels, but the best of it seems to be nearly as large as the "horse-tooth" corn, to be found on every Southern farm. But who has tried it? We read: "We have tried this corn on our experimental farms, and find it even better than is claimed for it. No farmer in the United States should miss purchasing a package of the Bessarabian Corn.—*New York Agriculturist*, Nov. 15th, 1881." "Ah, ha!" said we; now we know why the "N. Y. Agriculturist" was published—to puff this "Bessarabian Corn," and at once turned to our one only number (Nov.13th,) of that agricultural sheet, to see the article from which the quotation is made.

We looked all through its pages, and failed to find it. One of the few Agricultural items is "Some Facts About Corn," but that, so to speak, doesn't "Bessarab" once.



"BESSARABIA" HEADQUARTERS, W. 50-st.

Wm. F. Fowler & Co., how could you take in vain the name of the "New York Agriculturist"—Its very youth should have protected it.—And, Wm. F. F. & Co., are all the other quotations in praise of this corn, from (of all places) English journals, just as reliable as that from the "New York Agriculturist?" But Wm. F. F. and Co., before we discovered your remarkable way of quoting, we went up to make the acquaintance of our cotemporary the "New York Agriculturist," and not wishing to be unknown to any "Dealers in Agricultural Implements, Seeds, etc," we went to see *you*. No. 1528 Broadway, between 44th and 45th streets, was the first objective point—the publication office of the "N. Y. Agriculturist." There was an empty store with the sign "To Let." The windows were decorated with the circulars of Boyd's Glasses, and there was a card saying that Boyd had removed to 203 W. 49th street. Baffled in finding "our respected cotemporary," we would console ourselves with the "Implements," and made for Wm. F. Fowler & Co., No. 742 Seventh Ave. The building No. 742 7th Avenue is on the northwest corner of 49th Street and 7th Avenue; the upper part of this building was occupied by Boyd, but *his* entrance to the house was No. 203 West 49th Street. The card on the door of 1528 Broadway directed persons to 203 West 49th Street, as the place where Boyd had removed to. The only indication of "Seeds" to be found at 742 7th Avenue, were the seeds of delirium tremens, in the shape of a low liquor store. The bar-tender knew nothing about any other "Seeds" than those sitting around the place. On the corner of the house, above the gin-mill, was a sign that Boyd would remove on May 1st to 224 West 50th St., near Broadway. At W. 50th St. we inquired for Messrs. Fowler & Co. Boyd, we knew you at sight, and by the way you looked us over, you evidently "smelt a mice." We will credit you with having kept a straight face when you explained that "Fowler & Co.," had moved, and that you were attending to their business for a few days, but they, (F. & Co.) would at a stated time be at your house. Where Fowler & Co., with all their stock of "Agricultural Implements, Seeds, etc.," had moved to, you omitted to mention. We asked where the "N. Y. Agriculturist" could be found, and when told that "it was not published any more," our feelings were much like those of the little girl, when she found that her doll was stuffed with sawdust. What is there left that is real?—No "N. Y. Agriculturist,"—No "Wm. F. Fowler & Co."—No "Bessarabia," but some corn—nothing now seems real but Boyd, and if he moves so from place to place, we may soon lose sight of him; but, no, we shall not. We have perhaps given more space than the matter deserves, but if journals will continue to advertise such stuff as "Bessarabian Corn," without even inquiring into the matter, we feel obliged to show them occasionally the truth of our frequently repeated assertion, that no seed, or plant, or fruit of any value, is ever introduced by transient and unknown parties. When another of these turns up, recollect "Bessarabia," the meanest of humbugs, because it lies to farmers in a most outrageous manner, and even lies about its own miserable sheet, which was apparently started—one number—to mislead the people with the idea that they were getting the "AMERICAN" *Agriculturist* for 75 cents a year; and that it was this Journal that commended the Bessarabian Corn, and the other humbugs, "electrical," and otherwise.

We specially request all those who have sent 75 cents for a year's subscription to the "New York" Agriculturist, or who know of others having done so, to give us the particulars, and let us know if they have ever received back their money, or anything else for it, save the single "Vol. 1, No. 1." The names will not be published without the writers' permission.

**Where is Bessarabia?**

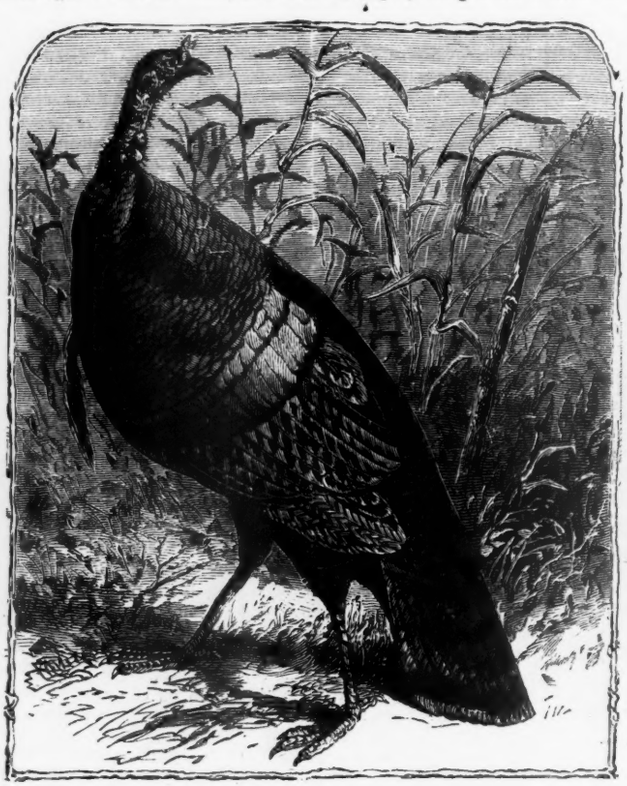
may be asked by those a little rusty in their geography. We must ask *which* Bessarabia? One is a province in southern Russia, and the other is pleasantly situated on the banks of the Delaware and Schuylkill, and its chief city is Philadelphia. Since the foregoing account of this remarkable corn was in type, our researches have extended to Bessarabian Philadelphia. We there learned from a seed house that a few months ago they sold ten bushels of "Southern Flint Corn" to J. C. Boyd, of New York, and furnished them a copy of their engraving. Later the seed house had an order for 20 bushels more of the corn, but having seen the Bessarabia circulars, they, in view of the use made of it, declined to fill it, a fact so creditable, that we regret that we are requested to avoid giving the name.

This completes the chain of evidence in this latest fraud upon Farmers; while "morally sure" that the corn was of some common kind, we lacked the evidence which has now so unexpectedly turned up. While we can doubtless prove, even by Boyd himself, that the corn he bought in Front St., Philadelphia, is the same that Boyd, or Fowler, sends out as the "Imperial Russian," and "Bessarabian,"—yet who doubts it? Most swindles like this are shrewdly managed up to a certain point, where they weaken, and, in the slang of the day, "give themselves away." What folly for Boyd to locate his "Bessarabia" so near New York! and to buy it as Boyd, or as Fowler & Co!—there is no need of it, not the slightest.

## The Wooing of the Wild Turkey.

BY J. M. MURPHY.

The males commence wooing as early as February in some of the extreme Southern States; but March is the opening of the love season throughout the country, and April the month in which it reaches its highest development. The males may then be heard calling to the females from every direction, until the woods ring with their loud and liquid cries, which are commenced long ere the sun appears above the horizon, and continued for hours with the steadiest persistency. As both sexes roost apart at this period, the hens avoid answering the gobblers for some time, but they finally become less obdurate, and coyly return the call. When the males hear this, all within hearing respond promptly and vehemently, uttering notes similar to those which the domestic gobblers do when they hear an unusual sound. If the female answering the call is on the ground, the males fly to her and parade before her with all the pompous strutting that characterizes the family. They spread and erect their tails, depress their wings with a quivering motion and trail them along the ground, and draw the head back on the shoulders, as if to increase their dignity and importance; then wheel, and march, and swell, and gobble, as if they were trying to outdo each other in airs and graces. The female, however, pays little attention to these ceremonious parades, and demurely looks on while the rivals for her affection try to outdo one another in playing the gallant and dandy. When the strutting and gobbling fail to win her, the candidates for matrimony challenge each other to mortal combat, and whichever is successful in the contest walks away with her in the most nonchalant manner. The easy indifference of the hen as to which she will follow may not be pleasing to persons imbued with romantic feelings, yet she is only obeying a wise law of nature, which decrees that only the fittest should live, and in the lower animal world these are necessarily chosen for their physical qualities.



The battles between the males are often waged with such desperate valor that more than one combatant is sent to join the great majority, as they deliver very heavy blows at each other's heads, and do not give up a contest until they are dead, or so thoroughly exhausted as to be scarcely able to move.

When one has killed another, it is said to caress the dead bird in an apparently affectionate manner, as if it were very sorry to have been compelled to do such a deed, but could not help it, owing to the force of circumstances; yet I have seen the winner in a tournament in such a rage that it not only killed its rival, but pecked out its eyes after it was dead. When the victors have won their brides, they keep together until the latter commence laying, and then separate, for the males are so jealous that they would destroy the eggs if they could, in order to prolong the love period, and the hens, knowing this, carefully screen them. The males are often followed by more than one hen, but they are not so polygamous as their domestic congeners, as I never heard of a gobbler having more than two or three females under his protection. The adult gobblers drive the young males away during the erotic season, and will not even permit them to gobble if they can, so that the latter are obliged to keep by themselves, generally in parties of from six to ten, unless some of the veterans are killed, and then they occupy the vacated places of the bridegrooms, according to the order of their prowess.

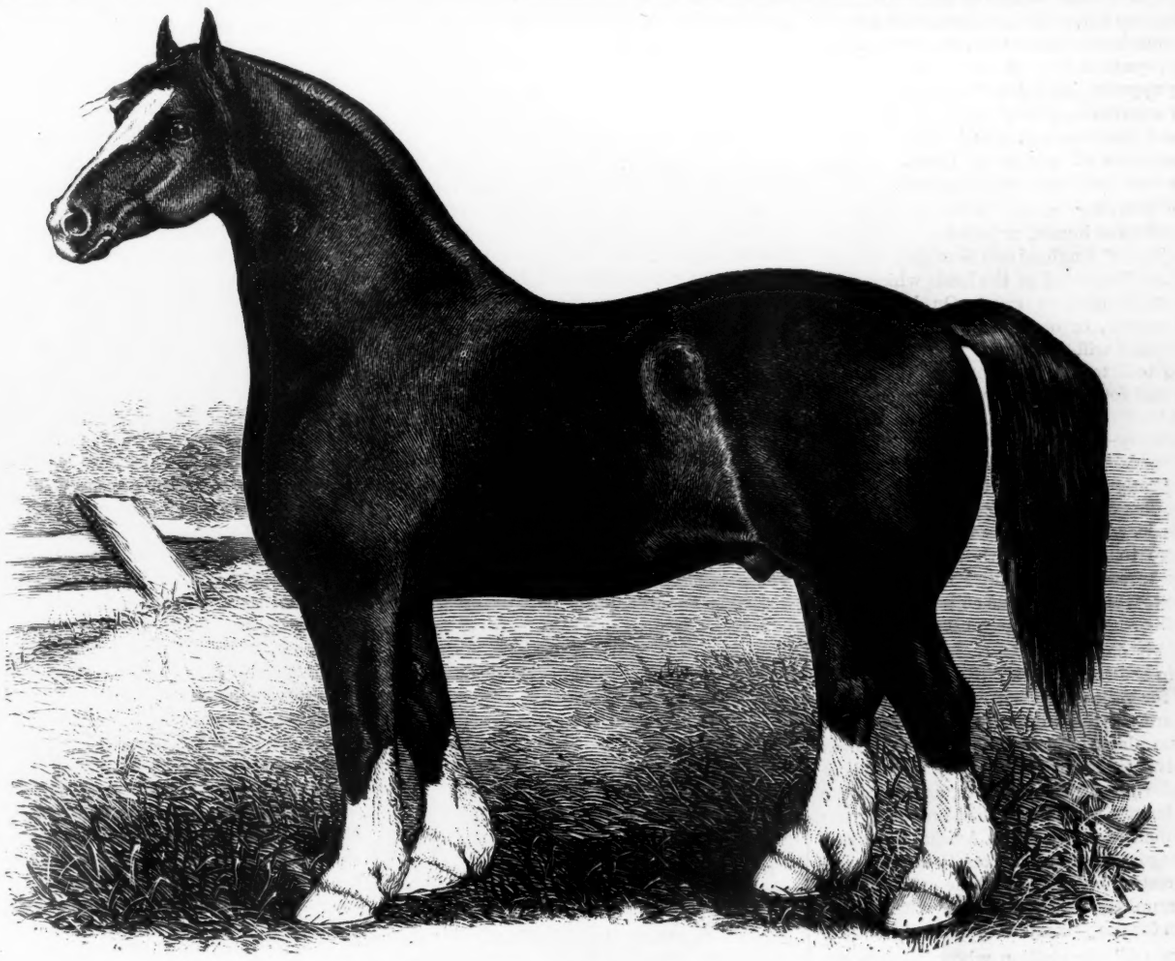
Some aged males may also be found wandering through the woods in parties of two, three, four, or five, but they seldom mingle with the flocks, owing, apparently, to the waning of their salacious disposition. They are exceedingly shy and vigilant, and so wild that they fly immediately from an imaginary danger created by their own suspicious nature. They strut and gobble occasionally, but not near so much as their younger kindred. Barren hens, which also keep by themselves, are almost as demonstrative in displaying their vocal powers, airs, and feathers as the old males, whereas they are exceedingly coy and unpretentious when fertile. This fact would seem to prove that ordinary animal nature is changed by circumstances. When the love season is over, the males are very much emaciated, so, when the hens leave them, they keep by themselves until they recover their strength, and then reunite in small bachelor parties; but, instead of being exceedingly clamorous, as they were in the early part of the mating period, they become almost silent. Yet they sometimes strut and gobble on their roosts, though, as a general rule, they do not, and content themselves with elevating and lowering the tail feathers, and uttering a puffing sound. They keep at this exercise for hours at a time on moonlight nights without rising from their perch, and sometimes continue it until daylight.

When the hen is ready to lay, she scratches out a slight hollow in a thicket, a cane brake, beside a prostrate tree, in tall grass or weeds, or a grain field, and lines it rudely with grass or leaves, and then deposits her eggs in it. These, which vary in number from ten to twenty, are smaller and more elongated than those of the domestic turkey, and are of a dull cream or a dirty-white color, sprinkled with brownish-red spots. Audubon says that several hens may lay their eggs in one nest, and hatch them and raise the broods together. He found three hens sitting on forty-two eggs in a single nest, and one was always present to protect them.

If the eggs are not destroyed, only one brood is raised in a year; but if they are, the female calls loudly for a male, and when she is rejoined by one, both keep company until she is ready to commence laying again, when she deserts him or drives him away, as he has the very strongest penchant for destroying the eggs, in order to keep her in his company. This forces her to build her nest in the most secluded spot she can find, and to cover it carefully with leaves or grass whenever she leaves it. We present pictures showing how wild turkeys are "called" by hunters to them with whistles, and how they are entrapped. When once enticed within this trap, they are so confused as to be unable to find their way out.

TURKEY-TRAP.

"CALLING" TURKEYS.



THE CLYDESDALE STALLION "NUBIAN."

## Clydesdale Horses.

The antiquity of but few breeds of our domestic animals can be the subject of special boasting on the part of their breeders. Among horses the only really ancient breed is the Arabian, and while a number of more or less natural breeds exist, of which it is difficult to say that they owe more to *man* than to *nature*, nearly all the highly valued breeds of horses of the present day are the result of patient and careful breeding with a definite object in view. The Arabian has been thus carefully bred from remote antiquity. Pedigrees have been kept, performances passed into legend and history, and the blood of certain families treasured beyond price.—Noticeably these families are traced uniformly in the *dam's line*, not in the sire's line, as we too often do in stating the pedigrees of our carefully bred horses.

The English thorough-bred race-horse originated in the first half of the 18th century, say 1715 to 1760, by crossing and mingling Arabian, Turkish and Barb blood, with more or less native English, and keeping pedigrees with the greatest care. Our own American thorough-breds are only a branch of this breed, kept perfectly free from other blood. So it is also with the so-called "English" horses of Europe. In every country where they are valued, pedigrees are recorded and the blood is kept pure or the horses lose cast at once. The Orloff trotters of Russia originated late in the 18th century, and represent the selected progeny of a single sire; pedigrees being kept, and performances recorded.

Thorough breeding really consists in keeping and studying pedigrees and performances, and pairing animals with reference to qualities conspicuous in their ancestry which the breeder desires to perpetuate; and we may expect with confidence to be able thus to improve the family and through it the breed in whatever direction we choose to expend thought, money, and energy. In this way we are producing a breed of trotting horses in this country, which within fifty years will probably be as well entitled to the term thorough-bred as any other horses.

Among draft-horses this principle has just as legitimate application as among horses used for running and trotting. The French originated a most excellent and useful breed of draft horses—the Percheron—which was only saved from extinction by the opportune writings of M. Charles du Hays (not du Huys), and others. These horses were and are bred without pedigrees, and have none, except such as depend upon the memory of the breeders. It is to be hoped that they will hereafter be bred pure, and that pedigrees will not only be kept but recorded in connection with such tests and performances as will prove the superiority of individuals and form a basis for breeding. American draft-horse breeders have selected as it were by common consent two breeds—the Percheron (including the inevitable mixture of the less good Norman blood), and the Clydesdale Horse. They are both excellent, and each may well have their ardent admirers and advocates.

The Clydesdales have, however, one immense advantage. They have been bred from the first—that is from early in the present century, say from 1810-20—with carefully preserved pedigrees, which are the subject of record. They show the result, in persistency of type, in steady improvement, and in the increasing demand for the horses both for labor and for breeding. They possess another advantage, namely, color. Although there is a family of Gray Clydes which find favor, yet, in the long run, dark colors have a decided advantage over grays in the market. The Clydes are large, yet in size the old English cart horse is superior, but he has the reputation of being a soft, fleshy-limbed beast. They have good feet, yet one may hardly say "none have better"; though it would be hard to name a breed that has, without fear of contradiction. They are hardy and tough when mature; last well at slow, heavy work, and among them, those which do not naturally reach great size and weight, trot off freely, and with ease move heavy loads at a brisk pace. They have neat heads, well set on arching necks; their breasts are deep and broad; backs short, connecting the magnificent sloping shoulders with the massive loins; barrel cylindrical, and well ribbed back. Though standing 16 to 17 hands high, and weighing 1,500 to 2,000 pounds, they have the look of low-set, pony-built horses, which is due to the shortness of their

limbs, and to the weight of bone in them. The legs are flat, with hard firm tendons, and are remarkably free from bony growths, splints, spavins, etc. A fancy which we can hardly approve, has led to the encouragement of an enormous growth of hair upon the legs and fetlocks, and this is now regarded as indicative of purity of blood. Heavy manes and forelocks are also prized.

The traveller meets with magnificent teams of these horses, or half-breds in all the large cities of England and Scotland, and the American is amazed at the loads which they move with obvious ease. On level, well paved streets, or on macadamized roads, a single horse will draw and is often loaded with 3 to 5 tons. Two tons to the single horse, and four to six for pairs is usual. We do not load our heaviest teams like that in this country—but it is surely economical in every way. The demand for heavy horses is constantly increasing in our large cities, and for this class of horses there is always a quick sale. They are easy keepers, and cost no more to raise until they are five than lighter horses, which require more care and training, while the Clyde colt at three will earn his own living, though unfit for market.

As their name implies, these horses originated in the valley of the River Clyde, whose banks for miles are lined with the greatest ship yards of the world, and in those yards large numbers of these magnificent horses are advantageously employed, and where they take great pride in them, as one of the characteristic products of this famous, fertile and romantic valley. The Animal Shows of the Glasgow Agricultural Society are especially interesting on account of the exhibition of great numbers of these horses, where competition for the prizes is very close and severe.

"NUBIAN," the stallion whose picture we present, was bred in Stirlingshire, Scotland, foaled in 1876, and imported in 1880. His sire was "Ivanhoe," a famous prize-winner, and his dams of immediate ancestry, have won prizes and gold medals enough to make a small fortune. Powell Bros., who are the owners of "Nubian," are large importers and breeders of Clydes. Their stock-farm in Crawford Co., Pa., is famous for its excellent buildings and appointments. They breed Percherons also, and trotting horses, but the Clydesdales are their especial pride, and were chosen after studying the best breeds in their native lands.

## The Varieties of Barley.

A friend asks if the commonly cultivated kinds of barley—the two-rowed and the six-rowed, are of the same species. It is a curious fact that but little is positively known about the origin of our cereal grains. They have been cultivated from the earliest recorded times, in a state not essentially different from their present one. None are at present known with any certainty in their wild state, though in the case of barley, specimens which are not essentially different from the two-rowed kind, have been found apparently native near the Caspian sea. In order to understand how two varieties so unlike in appearance, can be forms of the same species, it is necessary to examine a head. What we call a head of barley consists of the flowers of the grain with the accompanying chaff, all crowded together upon the upper end of the stem or straw. If we strip off grain and chaff, and leave the stem naked, it will be seen that this portion is not smooth and straight, like the rest of the straw, but has a wavy or zig-zag appearance, due to notches formed by a hollowing out of the stem on two sides, and that these notches are placed alternately. The flowers of the barley are attached to the stem at these notches, there being three at each one. A single joint is shown in the engraving, with the three flowers, *a*, *b*, *c*. We call these *flowers*, but their proper name is *spikelets;* in barley these spikelets are one-flowered and mature but one grain, while in the related wheat, the spikelet has several flowers, and produces three or four grains. The parts, *a*, *b*, *c*, are chaffy scales, which envelope the parts of the flower and afterwards the grain, each one bearing a long, rough, bristle-like point; the bristles at the sides and elsewhere, *d*, *e*, are merely appendages to the flower, and we need give them no further attention. It will be

A JOINT OF A BARLEY HEAD.

understood that the whole head of barley is made up of repetitions of what is here shown; upon the opposite side will be another set of three, and so on alternately to the end. In two-rowed barley, only the central one, *a*, of the three spikelets produces a grain, the others being abortive, and remaining as chaff. But the side flowers are sometimes perfect, and all three form grains, this (there being three similar ones on the opposite side of the head) produces six-rowed barley. It may be that the middle flower, *a*, is abortive, while those at each side, *b* and *c*, both produce grains, in which case we have four-rowed barley, a well-known, though not very common variety. It will be seen then, how, by the production, of one, two, or three grains at each joint of the head, these very unlike kinds of barley may be produced. It is not an unusual thing in the flowers of grain, as well as in many other flowers, for some of them to be abortive and fail to perfect fruit; such flowers, however, often contain their reproductive parts (stamens and pistils) in a rudimentary or imperfect state; these may be developed by some condition of the soil, or other cause, and the progeny of such plants may continue to reproduce the peculiarity. Besides these differences, caused by the production of grain of one, two, or three flowers at each joint, the character of the chaff, the length of the bristles, or beard, the size and color of the grain, and many other minor differences, produce sub-varieties in each of these three chief kinds of cultivated barley.

## Lameness in Horses.

BY D. D. SLADE, M. D., PROFESSOR OF AGRICULTURAL ZOÖLOGY, HARVARD UNIVERSITY.

To the owner of any domestic animal, especially of horses, nothing is more annoying than lameness. To lose his services just when most needed severely taxes one's patience, and all the more because of the frequent difficulty of detecting the cause. Lameness is not in itself a disease, but simply an indication of disease—an exhibition of pain or disability in a limb or limbs, the result of accident, disease, or malformation. We must first ascertain the location, and it is often not only difficult to establish with certainty the exact seat of lameness, but even to determine which limb is affected. For example, a horse in trotting away from us, may seem from the movements of the body, to be lame in one of its hinder extremities, when the difficulty actually exists in one of the forward limbs—a mistake to be rectified when viewing the animal trotting *towards* the observer.

To form a correct diagnosis, many circumstances are to be considered. Thus the animal must be examined at rest as well as in motion. One of the most frequent manifestations of lameness in the stable is "pointing," whereby on lifting the weight from the affected limb, the foot may be extended considerably in advance of the other, or may have a semi-flexed position, the toe just touching the ground nearly or quite on a level with its fellow. The former condition signifies trouble in the foot or posterior portion of the lower limb; the latter indicates injury to shoulder or elbow. The constant shifting of the weight of the body from one fore limb to the other, or the extension of both fore feet, the weight being taken on the heels, with an advance of both hind extremities nearer the center of gravity, indicates severe affections of the front feet.

The bringing forward of one hind foot, the limb being flexed and the toe barely touching the ground, denotes some lesion in the neck or in the region immediately below it. This position is often taken either from fatigue or habit, but is not confined to one extremity. When both hind limbs are in pain, the fore limbs are carried back as far as possible, to remove the weight from the former.

Many forms of lameness can only be detected during motion, and for this a slow trot is best. The animal showing lameness during walking is very lame; severe lameness in one fore extremity is shown by nodding the head in the trot, caused by taking the weight quickly from the infirm limb; the head is thrown upon the sound side. Lameness in the hind extremity is similarly shown but not so marked unless the lameness is very great. If both fore limbs are affected, the horse catches them up and puts them down quickly, making a short uncertain gait. This abnormal condition being sometimes difficult to detect dishonest dealers take advantage of it when an animal is lame in one fore limb, by laming the other also.

If both hind limbs are disabled, the horse is particularly crippled in movements, especially when backed. In this case it is often difficult

to distinguish from mere stiffness, especially as both may exist together.

Certain positive signs aid in determining the exact seat of lameness, as increased heat, swelling, and tenderness. An examination should be made not only in the stable, but during rest immediately after severe exercise, this test being essential to bring out existing lameness in the animal.

The causes of lameness are general and special. The former mainly act indirectly, and are often constitutional; the latter, which are by far the most frequent, are seated in the disabled limb, and are due to wounds, bruises, fractures, dislocations, strains, and to the various results of inflammation in the hard and soft tissues of the limb.

Shoulder lameness is frequently due to a strain, or to direct violence, and is shown in repose by the hanging of the limb; from disinclination to move the muscles, and during motion by the dragging and difficulty of bringing forward the limb, which is done by a rotatory movement. It is also shown by the flinching when the foot is lifted and carried forward and backward. The positive signs before mentioned may or may not be present. If the elbow is affected, there will be a similar "hanging" of the limb, and excessive nodding of the head in motion. Usually the positive signs of injury are apparent. Injuries to the knee joint, whether from external violence or internal causes, are to be diagnosed by the direct symptoms presented.

In Splint, lameness is usually much increased by exercise. Pressure on the limb shows tenderness, and there is increased heat, with more or less swelling. A small Splint, in developing, may give much more pain, shown by lameness, than one fully formed. Ring-bone, and ossified side cartilages, in their early stages, may be recognized as causes of a peculiar stiffened gait, with the weight thrown upon the heels. The lameness nearly or entirely disappears before the bony deposit appears about the middle and lower pastern. Strains of posterior and other ligaments and tendons of the lower limb evidence themselves by the local symptoms, and alteration in gait. But there are cases of temporary lameness, from very obscure causes, attributable only to a sudden strain of some ligament whose exact situation can only be surmised.

The short, quiet step of the horse, with that inflammation of the feet known as Chronic Laminites in which the weight is thrown upon the heels of the fore limbs, is easily recognized. In the less frequent affection, Navicular Disease, the weight is thrown upon the toes, the gait is short, and the lameness, slight at first, is increased by exercise. Corns are discovered by rapping and pinching the sole, at the space between the bars and the quarters in the fore-feet. Disease of the frog is self-evident by the peculiar odor. A sand-crack sufficient to produce lameness cannot escape observation. Accidental injuries to the feet will generally be known by the history of the case. Lameness in and about the hip-joint, is most frequently the result of strain, and is to be recognized by the peculiar want of movement of the hind quarter, and, if of long standing, by the wasting of the muscles of the region. Stifle-joint lameness, either the result of luxation or of disease, may be known by the dragging of the toe, and by the local symptoms. Bone Spavin is manifested by positive signs, but more especially by the stiffness in the bending of the hock joint, and by the dragging and sudden catching up of the limb, and above all by the disappearance of all lameness during exercise, to re-appear after rest. Bog Spavin, a disease of the true hock joint, gives rise to a lameness similar to the last. The various tendons and ligaments of the posterior limbs especially in the neighborhood of the joints, are very liable to strain, and consequent distention of their sheaths, giving rise to lameness which, however, may offer no special characters.

## A Chicken Coop.

Mr. B. M. Ramsden, New Haven Co., Conn., sends us a sketch of a chicken coop that he

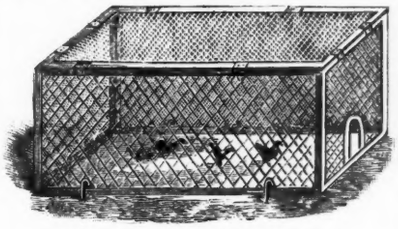


Fig. 1.—A BOX CHICKEN COOP.

has used for years. When not wanted for a coop, it can be used for protecting flowers,

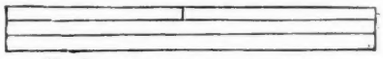


Fig. 2.—COOP FOLDED FOR STORING.

etc., by covering with paper or cloth. Make a frame three feet wide, six feet long, sides three feet. Put on hinges so that the sides will fold underneath, and the ends on top. This coop is light, easily made, and for keeping young chickens in, is very useful. The sides are longer than the top, so as to allow for the ends to fit in, which makes it firmer. Figure 1 shows it when used as a coop, and figure 2 when folded for storing.

## Cottage Cheese Profitable.

X. A. WILLARD.

A kind of cheese recently coming into demand in all our chief towns and cities, would soon have an immense consumption, if there was an adequate supply. In some localities it is called "Pot," or "Cottage Cheese," in others, "Dutch Cheese," or "Sour Curds." It is simply the curd of sour milk drained from the whey, molded into small fancy shapes, and eaten while fresh, or soon after.

The manufacture is quite simple. The milk is allowed to become loppered, when it is gently heated to facilitate separation of the whey. The curds are then gathered and salted or otherwise, to suit the taste, and pressed into small molds, or formed with the hand into balls or pats of suitable shape, when it is ready for the table. In cool weather when the sour milk does not readily thicken, it may be put into a suitable vessel set in hot water over the range, and stirred a few minutes until the whey begins to separate. It is then removed and treated as before described. It is usually made from skimmed milk, and fresh butter or sweet cream is often added to the curds while manipulating and pressing into form. This improves the quality and flavor for many.

In summer some use large cans having a spiggot near the bottom. The sour milk is allowed to stand in these in the sun, or in warm water, to thicken. The heat separates the whey, which is drawn off through the spiggot. The curds are then removed to a sink having a slatted bottom, covered with a strainer cloth. The curds thrown upon this cloth are soon drained, and ready to be pressed with the hands or molded into forms.

Sometimes this cheese is potted and left to turn into a pasty mass, having a strong disagreeable odor, when it is esteemed most acceptable to those who have acquired a taste for eating it thus, as it has some characteristics of "Limburger."

Cottage Cheese, when fresh and well made, finds a ready market in cities, and certain butter makers realize quite a profit by turning their skimmed milk into this product. I know leading butter makers in the Northwest who thus dispose of all their skimmed milk, sending the curds regularly to the receiver, who finds a quick sale at good prices. A very extensive milk dealer near Washington, D. C., informed me that so great was the demand in that city, that it was impossible to supply half his customers. Even in small towns there has of late sprung up a demand for the article, and I have no doubt that with proper effort large quantities of milk could thus be turned to good profit. These sour milk curds are not only healthful, but nutritious, and the great liking for them among all classes of people, indicates that they supply some elements in the animal economy, and which nature with unerring instinct craves as an easy way of repairing the waste of the body.

## A "Fork" Stable Scraper.

Mr. A. C. Gabel, Kendall Co., Ill., writes us:—"I inclose you a rough sketch of a very handy stable scraper. It is made of an inch board, 5 inches wide, and about 8 inches longer than the width of a four-tined fork. Bore a hole for each tine 1/4-inch in diameter from the edge of the board to about two inches from the opposite edge, the holes passing out upon the side. The lower part of the board is bevelled behind, thus forming a good scraping edge. After the coarse manure is pitched up, the fork is inserted in the holes

A "FORK" BARN SCRAPER.

of the board, and a scraper is at once ready for use. To store it, nail a cleat on the floor 2 inches from the wall, and secure the scraper behind this cleat; place one foot upon the board and withdraw the fork. Notches may be cut in the edge of the board opposite each hole, to assist in inserting the tines."

## Pig-House Furniture.

BY COL. F. D. CURTIS.

Several years ago wooden pig troughs were discarded in our pig house, because they were so often out of order and rotted so quickly. The old hogs tore them to pieces or gnawed holes that leaked and wasted the feed. Different kinds were tried from time to time, and while those made of oak or other hard-wood lasted longer than softer woods, the best soon needed replacing with new ones. This was annoying and expensive. Then a highly recommended iron trough was procured from Canada (figure 1). But on account of its round form it was found impracticable for stationary use in the pen, as the hogs would root it out of place, making it necessary to go into the pen among the inmates to

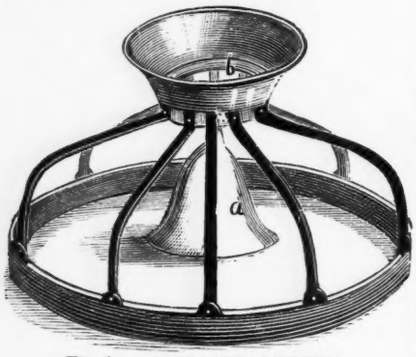



Fig. 1.—A CANADIAN PIG TROUGH.

pour swill into the trough, when quite likely the hogs would upset the pail, or crowd most disagreeably about the person carrying it. It answers well for feeding young pigs, which can be easily kept away; and it is convenient and durable as a portable trough in a yard or field. This trough is cast iron, the sides sloping inward, the diameter of the bottom being less than that of the top. It is 6 inches deep, 28 inches across the top, and shaped like a butter bowl, with an acorn-shaped projection (*a*) in the center, upon which the swill

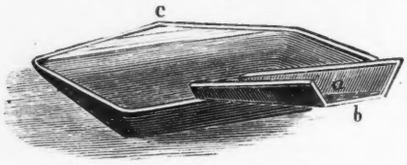



Fig. 2.—IRON TROUGH WITH SPOUT.

is poured to distribute it evenly in the trough. It is guided by the funnel-shaped collar (*b*). This is cast-iron, 12 inches across, and 3½ inches wide at the bottom. It is supported by ⅜-inch iron rods, riveted to a wrought iron band, 3½ inches wide and ¼-inch thick. The other ends of the rods are riveted to the upper edge of the trough. The eight divisions thus made by these eight rods prevent the animals from crowding each other.

I devised a stationary pig trough which gives complete satisfaction. There is no patent upon it, and none upon the Canadian one that I am aware of. The "Kirby Homestead Trough" (figure 2), is 4 feet long on the top, and 3 feet at the bottom. The sloping of the sides and ends is so graduated that there are no right angles, or corners, either at the ends or in the bottom. This prevents any lateral pressure and liability to crack by freezing. The corners are made full or rounding. The spout (*a*), cast with the trough, is 17 inches long and 14 inches wide at the mouth (*b*), narrowing to 7 inches at the trough, with sides 2 inches high. Opposite the spout is a rise (*c*), 2 inches high at the center and sloping to nothing at its ends. This prevents the swill from flowing over the side. The trough is 14 inches wide across the top, and 6½

Fig. 3.—ANOTHER IRON TROUGH.

inches high from the floor. It rests on its bottom, with two feet cast on its rear lower corners, bending outward at right angles, and with holes in them to admit spiking to the floor. These feet hold the rear side firm, and the front side is held in place by the partition which fits closely around the spout. These troughs can be swept out clean with a broom, and washed out in the same way. This sloping form makes it easy to remove the filth, and to rinse them. They weigh about 100 lbs., the iron being ¼-inch thick. Four hogs can eat out of one trough at a time. After a dozen years constant use, these convenient troughs are little worn, and not one has ever been cracked or broken.

Another iron trough (figure 3), has been found very useful for feeding young pigs when first weaned, or to drink out of when necessary to supplement the dam's milk with nourishment. It is a small iron pan or trough, 2 feet long, 1 foot wide, and 1½ inch deep. It is easily washed out and kept clean and free from taint, a very essential matter when feeding young pigs. Wooden troughs are difficult to keep properly cleaned. A common dripping-pan would answer, but its thin sheet iron soon rusts and leaks. The above iron trough (figure 3) has been used on the farm over 20 years.

Fig. 4.



Fig. 5.

In ringing hogs it is convenient to make the slipping noose in the rope by passing it through a small ring fastened in the end (fig. 4). Without the ring the noose is liable to be drawn tight, making it sometimes difficult to get it loose and off from the snout. With the ring the hog will throw it off as soon as the rope is loosened. A crooked stick (figure 5), is very handy for passing the noose over the nose. The noose can be kept from slipping down by tying it with a short piece of

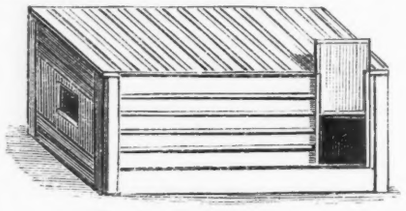


Fig. 6.—A SWINE CRATE.

tender twine, which will break as soon as the hog is caught and a jerk is made on the rope.

A pig house is not complete without a crate or box for moving hogs from one pen to another, or for conveying them from one place to another. Unlike sheep and other small animals, hogs cannot be readily tied or haltered, and it is always risky to attempt it. When put into a crate they can be carried quite handily, or moved about on rollers. A crate (figure 6) can be made with four upright posts 2 by 4 inches, with sides and ends nailed on the bottom, 10 inches wide and 1 inch thick, to which a floor of inch boards can be nailed. The sides are strips 4 inches wide and 1 inch thick. The top and end pieces should be 10 inches wide to give strength and to hold the covering. Doors, made to slide upwards, should be put in each end to allow the animal to pass in at one end and out at the other. An extra door should be made to insert in one end, with an opening in it though which the head of the hog can protrude. Spaces should be made in the covering to hold the top of the door, and cleats nailed on the sides and floor of the crate to keep the door in place, so that the size of the crate may be regulated to keep the head of the hog forced out of the opening, in which position it can be rung, or a noose can be readily slipped on its snout, and fastened to the top of the crate. When this operation is performed, the animal can be allowed to pass out, and another let in to take its place. This will do away with the labor of catching them in a noose, and make the labor of ringing less annoying and safer. By placing the crate in front of the door leading into the pen, there is no difficulty in getting the animals into it. Such a crate is very convenient for the temporary confinement of swine.

Fig. 7.—CANDLESTICK SCRAPER.

Old-fashioned iron candlesticks (figure 7) are the best instruments I know of to scrape the hair from scalded hogs. They will last for generations for this use and so handy are they that they have become heir-looms in families, and are preserved with great care for use in butchering time.

**Scarecrows.**—The crow loves planted corn and knows how and where to find it. But this bird lives largely upon insects, most of which are injurious. It is better, therefore, to keep crows from pulling the corn for two or three weeks, and allow them to destroy insects all the rest of the year. They are very keen sighted and sagacious, but there are several effective scarecrows. A straw man soon fails to be of service, because without motion or noise. A bottle with the bottom knocked out, may be swung from an elastic pole; attach a nail to a cord, so it will swing within the bottle, and motion and a peculiar noise are produced, making quite a good and cheap scarecrow. If a piece of bright tin is also suspended below the bottle, it will add to the effectiveness of the device. Any slight breeze will keep the tin casting bright reflections rapidly in all directions. An artificial bird may be made, and suspended from a pole in the same manner. A piece of cork will serve for the "body," into which a number of large tail feathers may be fastened to imitate a bird. The winds will "fly" this "bird," and frighten the visiting crows. Last May (page 198) we figured a "windmill scarecrow," which is a good device for a field of

corn. It consists of a combination of bells, pieces of bright tin, etc., kept ringing and in motion by the windmill attachment. It is much more effective than paper, twine, etc.

### Tethering or Picketing Animals.

It is not the most economical use of a pasture to allow animals to roam over it at will, picking up the best bits and trampling down as much as they eat. In some European countries, where the grass is much more luxuriant than with us, it is found profitable to confine the animals to a given spot, by hurdles or tethering, and when this is cleared, to move them to a fresh place. In our hot summers the frequent trampling injures the grass much more than one would suppose. After a breadth has been eaten off, keeping hoofs from it will greatly aid in the recovery of the grass. In tethering animals care should be taken to so place them that they can not interfere with one another, and to provide such a tether that they can not become entangled with it. On the Island of Jersey, where every cow is tethered from her youth, accidents are not known. There a rope is used with a chain at each end, which

A TETHER USED IN FRANCE.

is attached by a swivel. In France the tether for horses is of rope, arranged as shown in the engraving. The picket pin of hard-wood has an iron band carrying a ring, and loose enough to revolve. Midway of the rope is an oblong ring of iron, at each end of which is a swivel, and there is another swivel at the end which is attached to the halter. An iron pin is preferable to the wooden one.

### Milk the Year Round.

With good tub butter at forty to fifty cents in the country markets, it is a question in the dairy districts whether six or seven months milking is, on the whole, the best method. The general practice is to have all the cows drop their calves in early spring, get what milk out of them one can on grass, and dry them off as the pasturage fails. They go dry four or five months, and there is frequently no milk in the dairyman's family for months in the winter. The demand for fresh butter in the cities and villages is so great that more of our best farmers are turning their attention to the problem of making winter butter economically. The competition is so lively that they can make their own prices for a gilt-edged article. Of course it takes a little more capital to do this, but if it can be made to pay a fair interest, it will be well invested. The barns will have to be made tighter, so that a third of the fodder will not be wasted in keeping up animal heat. Winter milk and butter cannot be made economically with feeding in an open stack yard, or in an old rickety barn. There is needed a cellar for storing roots, and manufacturing manure. Spring or cistern water must be supplied under cover, and no needless exposure of the cows to the chilling blasts of winter. A variety of food, and that of the best quality for producing milk, must be supplied in liberal measure. Hay should be made of June cut grass, rather than of grass gone to seed in August and September. Hay alone will not give the best results. It should be supplemented by rations of corn meal, or linseed and cotton-seed meal; also beets, mangolds, cabbage, or other succulent forage. The time to prepare for winter milk is in the season of seeding and cultivating. When the dairyman has control of the calving time of his cows, and a portion or all of them can be made to come in late in the season, they will give their largest yield of milk in the winter, when butter and milk bring nearly two prices. With a little enterprise and proper fixtures, the production of winter milk and butter can be made to pay handsomely. Prices show a new and pressing want. Let the dairymen meet it.

CONNECTICUT.

### Improvements in the Harvest Field.

Does the reader recollect his feeling when he first saw the horse-reaper move into the field and actually "knock" the grain into sheaves so rapidly that the smartest binder could not keep up with the work. The first great Exhibition or "World's Fair" was held in London in 1851, and there the first really successful Reaper was shown. We recollect a letter from a sprightly American lady which reached us — of all places in the world—in what is now Arizona. She said, "When I saw the surprise of the English farmers at the working of our American reaper, I felt a little disappointed that the machine had not an attachment to turn out hot biscuits." But American ingenuity was soon at work upon an "attachment" compared with which the production of "hot biscuits" would be mere child's play. When the Reaper could throw off the grain in gavels ready for the binder, the next step was to make an automatic binder, so that the machine could deliver the grain in sheaves. We shall probably never know the vast amount of inventive genius that was devoted to the production of a binder, or of the many failures that preceded the day when, at the fair, we saw a Reaper bind its grain and throw the sheaf aside to be ready for the next. It seemed then that perfection had been reached. The grain was not only cut, but it was bound so securely with wire that the machine threw off its sheaves, as if to show how thoroughly they were bound. But the reaping and binding is not all of the wheat harvest. The threshers had a word to say, and threshers are for a time the masters of the situation. They found the wires difficult to cut; the pieces of wire would get into and derange the thresher, and more than all, cattle would die from eating straw and bits of wire together. The wire binder was a great thing, but it was plain that twine must take the place of wire before the Reaper could fill the measure of its usefulness. Now, after many trials and many failures, the TWINE OR CORD BINDER has come. It came in 1881 with the "Champion Harvester" to several farms, but in the now coming harvest, it will be in use over a vast extent of territory. The problem:—How to tie up a bundle of wheat or other grain with a cord is solved. Like all great inventions, the Cord Binder is simple; exactly how the knot is made can only be learned by closely watching the binder in operation. The knot, when finished, is shown in figure 1, which represents the cord at about its actual size. The knot is of a kind that, when the sheaf swells, as it naturally will

Fig. 1.—THE FORM OF THE KNOT.

after it is bound, the tighter it will hold. In the mechanism that makes the knot, the "Bill Hook Knot-Tie" (fig. 2) plays an important part, and pulls the loop to its place as readily as if it had an intelligence behind it, Indeed this, and all other machines that seem to think, as well as work, do have behind them the intelligence of the inventor, which has been imparted to iron and steel to endow them, as it almost seems, with intelligent motion. In attaching the Automatic Cord Binder to the "Champion," it has been found necessary to make several improvements in the machine itself. Among these is "The Tucker," which brings the grain into a compact, round bundle, ready for the cord to be put about it; another is the contrivance for ejecting the bound sheaf and getting it out of the way of its successors. All these movements and others are illustrated in the publications issued by the proprietors of the harvester. The general use of the Cord Binder will soon make a demand for cord that may not be readily met. The culture of flax is yet very much restricted. We have no doubt that the extensive demand for twine to use with binders will give a new impetus to the production of flax, especially as machines have been invented to utilize the crude flax fibre. We do not know that cotton cord has been tried upon the Self-binding Reapers, but as that is

Fig. 2.—THE "BILL HOOK KNOT-TIE."

one of the things that must follow, the sooner that inventors give their attention to the use of cotton cord, the nearer will the Self-binding Reaper reach perfection.

**Thinning.**—In sowing, experience has shown, that it is better to use an abundance of seed, many times more than is needed to give the desired number of plants. This is done, not merely to make sure of a good stand, but to help break through the surface of the soil. In many cases, the carrot for example, the young plant is very small and weak, and were the seed sown singly at some inches apart, very few plants would force

their way above ground. Experience has taught that the united effort of many seeds will break through the soil above them, and that it is better to sow an excess and thin afterwards. There is nothing in which a novice is more apt to make a mistake than in thinning. He dislikes to destroy so many young plants, and has to learn by experience that a larger crop will result from the same plants thinned to 6 inches apart than if left at half that distance. Do not delay thinning too long, as in the operation the weeds that have come up in the row are to be pulled at the same time and a double advantage gained by the operation.

## A Method of Curing Hay.

Mr. C. P. Waring, Essex Co., Va., sends us a method of curing hay which he has used for several years to his entire satisfaction. It

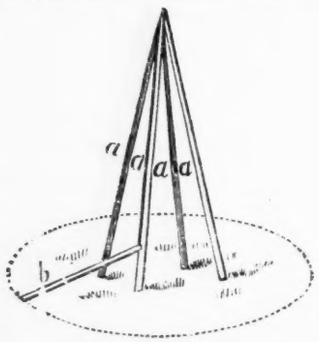



Fig. 1.—THE FRAME.

consists in taking four slender stakes six feet long, *a*, *a*, *a*, *a* (figure 1), fastened together at the upper ends with a loose joint similar to that of an ordinary tripod. One end of the fifth stake, *b*, rests on one of the four legs about a foot from the ground, the other end resting on the ground. The hay is stacked around this frame nearly to the top of the stakes, after which the stake, *b*, is withdrawn, and then the four upright stakes are removed. This is done by two men with hay forks, who raise them directly upwards. As soon as the legs are lifted from the ground

Fig. 2.—THE SMALL STACK.

the pressure of the hay brings them together, and they can be removed with ease, leaving a small stack of hay, as shown in figure 2, with an air passage running from the bottom upwards through the center of the small stack, as indicated by the dotted lines, shown in the engraving.

**Preserving Eggs.**—D. D. Day, Orleans Co., N. Y., sends us the following method of preserving eggs which he has employed for thirty years: "Take any package, square or round, and put dry bran in the bottom. Set the eggs on end in a layer in the bran, covering them with bran. Put in another layer of eggs, and continue in the same way until the box is filled. The package should be put in a dry cool place. I make it a rule to turn the package 'end for end once a week.'"

## Law for Farmers:—Cattle in the Highway.

H. A. HAIGH, L. L. B.

The question whether domestic animals should be tolerated in the highways has been much discussed. It is sufficiently important to merit the attention it has received; for it has been stated that the farm fences of the country cost as much as the farm houses and barns. I do not vouch for the accuracy of this statement, but the expense, which is certainly very great, is occasioned far more by the necessity of fencing straying cattle out, than by fencing our own cattle in.

It is a general doctrine of law in this country that the land in the highway belongs to the owners of land lying along each side. With a few exceptions the American farm extends to the middle of the road, and the public has only the right to pass and repass there in an orderly manner, and the right to keep the way in repair. Every other use of the highway which does not interfere with this public right, belongs to the farmer owning the adjacent land. He owns the soil, grass, trees, stones, and gravel, and everything else upon the surface or under it, and may use them all in any way that does not affect the public right of passage; and the law will protect his ownership in them just as much as though they were inside his fence. No other person has any more right to pasture his stock there than in inclosed lands; nor can he hitch his horse to a tree there without being liable for the trespass, especially if the horse should gnaw the tree or do other damage; he can, in fact, only pass orderly along.

The Legislature of New York State, many years ago, enacted that the freeholders of townships could make regulations as to road fences, and prescribe the times and manner in which domestic animals should be allowed to roam in the highways, and the statute was held to be constitutional by the Supreme Court of that State, though some of the judges dissented. See Griffin *vs.* Martin (7 Barb. 297), and Hardenburgh *vs.* Lockwood (25 Barb. 12). These decisions are directly contrary to the strongly expressed dicta of several judges of the same Court, particularly that of Chief Justice Beardsley in Towawanda Railway Co. *vs.* Munger (5 Denio 264), which was affirmed by the Court of Appeals, though not upon this point. The question seems never to have come directly before the Court of Appeals. It is doubtful whether the statute would be held to be good law by that, the Court of last resort in New York. The Legislatures of other States have not generally gone so far, and the above statement of the law may be regarded as practically universal in this country.

Now with respect to domestic animals, the common law required every man who owned such to keep them upon his own premises at his peril. It did not require him to fence his neighbor's cattle out, but only to fence his own cattle in, or otherwise restrain them. This, too, may be stated as the law quite generally in this country, with the single exception that it has been restricted by local statutes so far as relates to the owners of adjoining lands. For it would be folly to require each to fence in his cattle against the other, as two parallel line fences would be a useless expense. Statutes have therefore generally been passed requiring adjoining owners of improved lands to maintain partition fences in equal shares; and if either is in default, he has no remedy for the trespasses by the stock of the other (Stafford *vs.* Ingersoll, 3 Hill 38).

As to road fences, the laws do not, with the possible exception of those of New York above noted, impose any obligation; and the farmer may, if he chooses, remove such fences, without impairing his right of action against the owners of any domestic animals that enter and do damage by that means.

As a person, therefore, has no right to let his cattle go in the highway, let us see what his liabilities are if he does do so.—In the first place he is liable for the trespass they commit by simply being there unlawfully. He is liable for the grass or other herbage they consume, for the injury they occasion by uprooting the sod or barking the trees, and for any other damage they may reasonably be expected to do. If while there they hook, or kick, or bite any person lawfully using the way, he would be liable for the injury (Barnes *vs.* Chapin, 4 Allen 444) possibly even though he did not know of their vicious disposition. A man once turned his horse into a public place where children were playing, one of whom began switching the horse, which turned and kicked and killed the child. He was convicted of manslaughter (10 Cox 102). The owner of a drove of cattle, which is allowed to stop and feed in front of a farm, is just as much liable for the feed taken as if they did the same inside the fence. The owner of a horse which gnaws and barks a tree in the highway, is liable for the injury, whether the horse is lawfully in the highway or not, and the owner of the tree may remove the horse without becoming liable (Gilman *vs.* Emery, 54 Me. 460).

Notwithstanding the fact that the farmer owns the land of the road, he cannot use it himself for any purpose which at all interferes with the public rights there. He can not put his wood piles, wagons, or pig pens there; and if he does, and the traveller runs into them in the night and is injured, he would not only be liable for the private damages sustained—(Linsley *vs.* Bushnell, 15 Conn. 225) but he may be indicted for obstructing a public way.—From this brief review, it will be seen that the law is strongly against turning the highway into a cow pasture or a barn-yard.

## Summer Poultry Houses and Yards.

BY D. Z. EVANS, JR.

Poultry houses should be comfortable for the fowls both in winter and summer, and to make them so is not very difficult or expensive. While some breeders claim a southern exposure as the most desirable, my experience is different. I have, invariably, had better results with houses facing the east. It may be well enough to have them face south in winter, but during the intense heat of summer it is very objectionable, especially where the fowls are kept confined to their yards and houses during the entire breeding season. If, by having them face the east, or even the southeast, there is enough sunshine

both winter and summer, with a very desirable shade during the warm months.

There should be plenty of light admitted in front, through a large swinging or movable sash. These should be so well fitted as to keep out wind and rain whenever desired. In summer, the sash should be entirely removed and the space filled either with a slatted frame, made with ordinary ceiling lath, or else with a neatly-fitting frame covered with cheap, strong muslin. I have found this latter more desirable than the slatted frame, as it admits air and light, but keeps out draughts which might injure the fowls while at roost, especially during the night. The white muslin does not attract the heat, and thus keeps the house comfortably cool. Some breeders use wire netting, but this has the same objection as the slatted frames, with no especially desirable feature. Where additional security is required, something may be placed back of the muslin.

A ground floor in the poultry house, if made about six or eight inches higher than the surface outside, to insure drainage, is the very best that can be had, and is better for the fowls every way than any other kind of floor; it is cool in summer without being damp and unhealthy at any season. A well-made ground floor soon becomes firm and compact, and is as easy to clean as a board, plank, or cemented one. Clayey soil alone can be used for such a floor, or, if this cannot be had readily, fill in first with 4 or 5 inches of clay, after which put on a layer of stiff or fair soil 2 or 3 inches deep, packing down both (separately) with a stout rammer before letting in the fowls. Some poultry keepers put a coating of sand on this earth floor, but it is entirely unnecessary if the clay and soil have been properly laid.

The sides of the poultry house should be made rain and wind proof, slatting or stripping the joints, outside, and lining the house with tarred paper or cheap building felt. This felt, being of close texture and well tarred, not only keeps out wind and water, but it is exceedingly distasteful to lice, mites, and other parasites which are troublesome to the fowls. To secure a freer circulation and admit plenty of fresh air, it is not necessary to have the damp night air blowing directly on the fowls, which would be the case when the windows and doors were left standing open, but have movable panels or slatted openings made at the ends or sides of the buildings, near the roof, unless a small ventilating cupola be built at the center of the roof, which, while it may be made very ornamental, is also much more expensive without being any more effective.

THE YARDS.—It is desirable to have inclosed runs or yards for poultry, especially where small fruits and vegetables are grown, for a chicken cannot discriminate between gleaning and stealing, and the hens are far better scavengers than gardeners. It is seldom advisable to keep the yard in one place more than a couple of years, for by that time the soil will have been packed down as hard as a plank floor, and be equally as free from grass. The cheapest and neatest kind of a fence is made with common ceiling lath. Good posts, of chestnut or heart cedar, are planted firmly, and two rails, of 2 by 3 hemlock, each 16 feet long, nailed near the bottom and top, are firmly nailed to the posts, about 3 feet apart. Before putting these rails on the post, nail two 6-inch common boards at the bottom, to keep the chicks in, to stiffen the fence, and to add to its hight. This will, with the lath, make a fence a little over 5 feet high, which will be enough to keep in most breeds that are well fed, and if it does not, clipping one wing of each fowl, or covering the yard with tarred twine netting (which can usually be bought cheaply at junk shops, or of any dealer in poultry supplies), will insure their keeping within bounds. Just before nailing on the lath, give the posts, rails, and the bottom boards a good coat of whitewash, and, when it is dry, nail on the lath, evenly and neatly, about two inches apart, after which the lath should be given a good coat of whitewash.

## Harness for a Bull.

In answer to an accumulation of inquiries as to the best method of harnessing a bull, we give engravings of plans heretofore recommended by us. As oxen are commonly yoked in pairs, they draw the load mostly by the top of the neck, in front of their shoulders, which is the "drawing point," and when a bull is yoked singly, the harness needs to be arranged that he may draw from this point. A bull cannot work comfortably in a "breast collar," that is, by a heavy strap passing horizontally under the neck; it would interfere with breathing, and soon gall the throat. Figure 1 represents a single wooden yoke made very much like half a common yoke. The ends project, and are provided with strong bolts with hooks or rings for attaching traces. A bull in a cart-horse harness, is shown in figure 2, the collar and hames being simply inverted. For large bulls an ordinary horse collar is not large enough. When the bull is worked before a plow or similar implement, other parts of the harness, except the yoke or collar, and the traces, may be dispensed with. It is well, however, to retain the girth-band, as this will hold the traces in place.

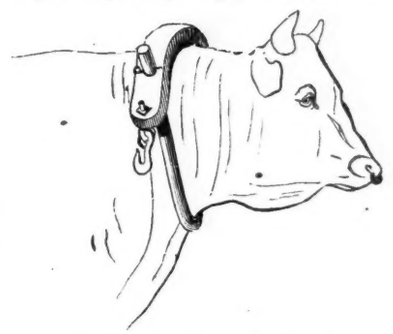


Fig. 1.—SINGLE YOKE FOR BULL.

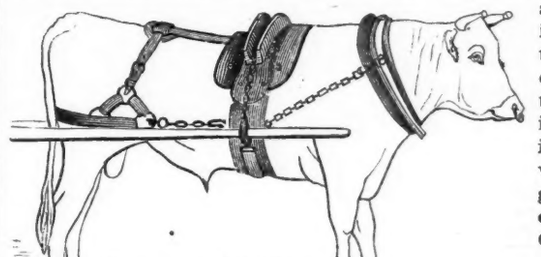


Fig. 2.—BULL HARNESSED TO A CART.

## Some Facts About Cutting Hay.—II.

BY W. H. JORDAN, PROFESSOR OF AGRICULTURE, PENNSYLVANIA AGRICULTURAL COLLEGE.

(*Concluded from page 204, May Number.*)

In the table already given, it was shown that there is an increase of dry substance in hay up to full ripening; that from blossoming onward, there is a decrease of protein, of fat, and of ash; that from the first to the last stage of growth there is an increase of carbohydrates, and an apparent decrease in total quantity of the ash and albuminoids. The decrease of ash can be accounted for by the fact that in some of the experiments given, the water was calculated only, which would tend to a moderate over-estimate of the dry matter in the earliest stage of growth. This may also account for the apparent decrease of nitrogenous material. Lack of uniformity of plots may have caused an error, but among so many experiments it would hardly seem probable that the error from this or all other sources had been so uniformly one way as to cause the dry material to seem 500 lbs. more per acre at the first cutting than the real facts would show. It would be necessary to have an error of 500 lbs. to account for the apparent loss of albuminoids in passing from the first to the second stage of growth. There seems to be a loss of albuminoids incurred also by letting the grass stand until considerably after bloom, instead of cutting while in bloom. This rather anomalous showing may be explained in part by the loss or decay of the finer parts of the grass plant as it advances in age.

It should be mentioned that in some of these experiments, at least, more or less clover was mixed with the Timothy, and as the clover matured sooner than the other, it became so dead before cutting as to cause a large loss of the leaves. Every farmer knows that the lower leaves of Timothy often decay from rust and other causes some time before cutting, especially when done late.

So that while there may have been considerable error in various ways tending to augment the apparent yield of dry substance, at the first cutting, and while there is probably a small growth of nitrogenous material in the plant even after the period of bloom, there is sufficient reason for trusting the figures given above to make it questionable whether there is very much total gain in the nitrogenous ingredients of hay because of the late harvesting of the grass. On the other hand, where grass is mixed with very much clover there is great danger of loss by standing until near ripeness.

Experiments the past season, not included in the tables, with Timothy of unusual uniformity and under conditions of a good degree of accuracy, show no *gain*, at least of nitrogenous material, in the late cuttings. The results may vary with the season.

The influence of age upon the kind of nitrogen compounds found in the plant is a matter of great interest, and one much discussed of late. The customary method of determining the percentage of *protein* of cattle foods has been to find out the total percentage of Nitrogen, and multiply this by 6.25, on the assumption that no appreciable amount of Nitrogen exists in any other than the

albuminoid form, an assumption now known to be false. At *no* time during growth, even at ripeness, does it hold true that quite a quantity of non-albuminoid Nitrogen compounds may not be present. Now the significance of this fact is this:—We know that true albuminoids play a very important part in animal nutrition. From them alone can be formed muscular tissue, and the nitrogenous compounds in milk. Rapid production of any animal product requires a liberal supply of albuminoids in the food. No matter how much Nitrogen there may be in a plant, if it be not albuminoid nitrogen we can speak with much less certainty of its food value. The investigations of later years have shown that, in hay especially, quite a percentage of nitrogen is in a non-albuminoid or *amide* form, sometimes to the extent of nearly one-third of the whole amount. These *amides* are in part organic combinations of Ammonia, and in all probability cannot take the place of albuminoids in forming flesh and milk.

The important question for the farmer is:—Does the age of grass have anything to do with the percentage of the total Nitrogen that will exist in this less valuable *amide* form? The first investigations on this point which became widely discussed indicated that a much larger share of the Nitrogen is, in the albuminoid form in old, than in young, grass plants. Kellner found this to be especially so with Timothy. With clover there was little difference between the young and old plant, indicating that the change would be greatest in the true grasses. The opinion has been expressed somewhat, of late, that farmers have been going to wasteful extremes in cutting grass early, and this change of the Nitrogen into a more valuable nutritive form (supposed to take place during the later stages of growth), has been used as an argument in favor of letting grass become more mature before cutting it.

But more extended investigation does not seem to substantiate the earlier ideas. Work done at the laboratory of the Department of Agriculture, at the Conn. Experiment Station, and by the writer, indicates that the percentage of total Nitrogen in the *amide* form, may *increase* after the period of bloom.

| | *Percentage of total Nitrogen in Amide form.* | | | |
|---|---|---|---|---|
| | *Before bloom.* | *Early bloom.* | *Full bloom.* | *Early Seed.* |
| 1. Timothy* | 21.8 | 18.4 | 24. | 26. |
| 2. Timothy† | 28 | 23.8 | | 26.4‡ |
| 3. Timothy† | 22 | 18.4 | | 23.4‡ |
| Average | 24. | 20.2 | | 25.3 |

| | *Flower head formed.* | *In full bloom.* | *After bloom.* | *In seed.* |
|---|---|---|---|---|
| 1. Clover* | 29.7 | 37.1 | 7.7 | 25.0 |
| 2. Clover* | 30.5 | 34.2 | 13.9 | 27.7 |
| Average | 30 1 | 35.7 | 10.8 | 26.3 |

* Department of Agriculture Report.
† Report of Pennsylvania State College, 1881.
‡ But little past blossom.

Certainly the figures in the above table are not favorable to the idea that we can expect the minimum percentage of non-albuminoid Nitrogen after the seeds have appeared. Evidently the subject needs further study, yet it is doubtful if the change in the Nitrogen compounds of grass as the period of ripeness approaches is of the extent or value at first suggested; and as the question at present stands, we cannot assert that the proportion of *amide* Nitrogen may not be as small at the period of bloom as at any other period at which grass would be likely to be cut. We have not looked at all sides of the question until we have considered what is the effect, upon its use by the animal, of those changes in composition which grass undergoes as it grows older.

Now there are two statements that can be made with all assurance of their correctness:—(1) No part of any food that is not digested is of any nutritive value. (2). Hay from early cut grass is more digestible than hay from late cut grass. As substantiating the latter statement, I give the results of an experiment with sheep, using hay from grass cut at three periods of growth. Out of 100 parts of the various ingredients fed, the table shows the number of parts digested.

| *Time of Cutting.* | *Organic Substance.* | *Nitrogenous Material.* | *Crude Fiber.* | *Other Carbohydrates.* | *Fat.* |
|---|---|---|---|---|---|
| May 14th | 76 | 73 | 80 | 76 | 65 |
| June 6th | 64 | 72 | 66 | 62 | 52 |
| June 26th | 58 | 56 | 61 | 56 | 43 |

The mere fact of superior digestibility is no evidence of superior food value, only so far as it shows that whatever may be the differences in the composition of the three kinds of hay, the ingredients of the early cut can be more completely used than is the case with that cut at either period later. We have as a compensation for this decreased digestibility as grass matures, the production of a greater amount of material and a possible change of certain compounds of Nitrogen into the albuminoid form. Undoubtedly this compensation, especially from the former source, more than balances the decrease in digestibility where grass stands no later than the period of bloom, but beyond that time it does not seem as if such can possibly be the case. The matter of palatability is one not to be ignored. In an experiment on feeding early and late cut hay, now being carried on at this College, it is found possible to get 20 lbs. of the early cut hay eaten where only 12 lbs. of the late cut are consumed. The former was cut in bloom, the latter two weeks later.

We have not stated that it is better to mow our fields of grass while in blossom in preference to an earlier or a later time. I believe the weight of evidence to be in favor of such a practice, but at the same time it would be foolish to make dogmatic assertions.

Certainly there are other considerations than the ones I have discussed, but if it were merely a question of quantity, quality, and so of nutritive value, it does not appear that with our present knowledge it would be wise for farmers to change what is now the average period of harvesting hay, viz.: *To cut it while in bloom.*

**Value of Farms—Wonderful Increase in 20 Years.**—The following summary shows the extraordinary growth in the valuation of the Farms of the United States, in so brief a period as only twenty years:

| | |
|---|---|
| 1860—Census total valuation | $3,271,575,426 |
| 1870—Census total valuation | 9,262,803,861 |
| 1880—Census total valuation | 10,197,161,905 |

It is to be noted, that 1870 was a time of great inflation in the estimated valuation of all landed property, under a depreciated paper currency, and at an era of high speculation; while in 1880, after a long period of great depression, real estate had hardly begun to feel the large improvement in the money value of almost everything. Probably a fairer estimate of the gold valuation of the Farms would be like this:

| | | | |
|---|---|---|---|
| 1860 | $3,271,576,426 | 1880 | $10,197,161,905 |
| 1870 | 6,000,000,000 | 1882 | *over* 12,000,000,000 |

Indeed, if we allow for the very large breadth of wild land changed into farms during two years past, and the rapid increase in value per acre in the leading agricultural States like Illinois, Iowa, etc., the present valuation will hardly fall short of Fifteen Billion Dollars, and the increase in round billions of dollars in 22 years would range something like this: 1860, *Three;* in 1870, *Six to Seven;* in 1880, *Ten;* in 1882, *Fourteen.*

## Grooming Horses.

Every horse owner ought to know that good grooming is a great saving of feed. This is demonstrably true, if not in actual economy of oats and hay, at least in the horse's feeling, spirit, action, and ability to travel or labor. It is real economy if we can get more *go* and *labor* by the use of a certain quantity of food with good grooming than without, for then with the same grooming the feed can be reduced. This is understood among horse-men the world over. I seldom groom my own horses, though I like to do it, as does every man who loves a horse, but it involves so much changing of clothes, and bathing, and disguising of odors by scented soap, etc., that I prefer to clean horses and stables by proxy. Lately, however, my good man-of-all-work was down with pneumonia, and I took hold. Of course I meet with new experiences. One is, the knowledge of the value of an old stub-broom. One of the horses was very nervous about having the hind legs cleaned, and the stub-broom seemed almost as efficacious as a curry comb and brush; indeed, the horses liked it. Within two days I could use brush or comb, or anything else I presume, without their flinching unless actually hurt. The broom was prepared by cutting off the corn about four inches beyond where it was corded.

Some months ago I picked up a wire "mane brush," made of steel wires about an inch long, set in a rubber plate in some way. They are quite stiff, but mobile in their setting. The men have not used it, or very little, if at all. They prefer a "root" brush for the mane and tail, and it is certainly very good. I notice that most men, in grooming a horse, draw the brush across the curry comb to remove the dust, with a little more vigor than they draw it over the horse. The result is, that the brush is soon worn out down to the back. I substituted the wire brush above noted for the curry comb, and the result is very satisfactory. The dandruff and dust are removed more thoroughly, and the brush hardly worn at all.

A horse which has been badly treated may be inclined to lift his foot viciously against the groom when working about his legs. When a cow kicks, we put a strap around her just in front of her hips. If she lifts her foot, the action of the stifle-joint is to cause a tightening of the skin in the flank, which is quite painful, and so she does not do it. Now if a man takes a horse's tail (provided it is long enough), and draws it through between the hind legs, and holds the end firmly in one hand just over the stifle, a horse can be controlled on the same principle. It makes a horse a little nervous and restless, however, and should be done so as not to give the animal any needless pain. W

## The Bamboos and their Uses.

Having occasion to look up some matters relating to the Bamboo tribe of grasses, we were reminded that, after the cereals and the forage plants, no grasses were so useful to mankind as these. We have often wondered that no attempt has been made to cultivate the larger species in this country; a few, dwarf kinds, six or eight feet high, have been introduced as ornamental plants, but there seems to be no reason why the tall and useful kinds should not have been grown in the southern portion, at least, of our country, and we have no doubt that some may be found that will succeed in the Middle States. We have one native species of the Bamboo tribe, the cane (*Arundinaria*) which forms extensive brakes in the Southern States, and extends to Virginia and Southern Illinois. As several of the gigantic Bamboos grow in the colder parts of Japan, and others are found at an altitude of several thousand feet on the Himalayas, it is highly probable that some species are sufficiently hardy to succeed over a large portion of our territory. There are some 120 species of the Bamboo tribe, divided into about 20 genera; these are mostly natives of Asia, but one has been found in Africa, and several in South and Central America. The larger Bamboos grow from 30 to over 100 feet in hight, and from 6 inches to a foot or more in diameter; like other grasses, the stem is marked by joints (nodes) at which point there is a transverse partition in the otherwise hollow trunk. These joints, from which the leaves arise, in time become bare below and give a peculiar appearance to a forest of Bamboos, as shown in figure 1. The leaves are small in proportion to the size of the plant, being rarely much over 18 inches long, and 2 to 3 inches wide; are clustered at the top of the stem. When growing in an isolated clump, the leafy tops of the tall stems curving gracefully outward, the whole resembles a huge sheaf and is a picturesque object. The flowers are in branching panicles, the individual spikelets often being very small, not larger than those of the Oat, though larger in others; the seed is about the size of a grain of rice. Some Bamboos flower annually; others require 20 or 30 years to become sufficiently mature, and with these, the stems often become so much exhausted that they die after producing a crop of seeds, new stems springing from the roots. On more than one occasion the seeding of the Bamboos has averted a famine; one of these was in 1864, in Soopa, a district on the west coast of India; it is stated that some 50,000 persons came from other districts to collect the seeds, which formed in many cases their sole subsistence. The leaves are used to cover the roofs of houses, to stuff beds, and afford a forage for horses. To enumerate the uses to which the stems of Bamboos are put would be as difficult as to catalogue the uses of wood. In some eastern countries,

1.—A FIELD OR FOREST OF BAMBOO.—*Engraved for the American Agriculturist.*

the stems enter largely into the construction of the house, and of most of the furniture within it. They serve as the masts and spars of the Chinese junks, and when split are the material of the sails, while the rigging is made from the fibres. Indeed, stems of different kinds and sizes serve from walking canes and sticks for supporting plants, up to nearly every purpose for which we employ scantling. The joints in the larger stems are from one foot to over two feet in length, and from 4 to 12 inches in diameter. These (fig. 2) are sometimes nearly solid, while in others the hollow portion is much larger. They are converted into a great variety of receptacles, for solids and liquid, and serve as baskets, boxes, barrels, jugs, etc. Split in various degrees of fineness, the stems afford the material for mats, blinds, screens, etc.; the fibre makes strong cordage, and is good paper stock. The stems even afford an article of food, the young tender shoots being cooked and eaten. Some of the more tropical Bamboos bear, what is remarkable in grasses, a berry-like fruit. An envelope that surrounds the pistil, in some genera, becomes fleshy as the grain ripens, and in one species is, when mature, "the size of a largish pear;" this, when cooked, is edible, though without much flavor. Though Bamboos grow wild, the Japanese and Chinese at least, do not trust to chance for a supply of so important a plant, but cultivate it; in their languages are treatises entirely devoted to Bamboo culture.

Since the above was in type, we had a conversation with a young Japanese friend upon the Bamboo. He informed us that a year or two ago a relative of his sent something like 200 different varieties of Bamboos to our Department of Agriculture at Washington. Inquiry was made at the Department concerning these plants, in order to learn where they had been planted, and what success had attended the experiment. Reply came from one of the officers that all that was known about the Bamboos was the fact that they had been received. The former Commissioner, it is supposed, sent or took them to some Southern State, but there is no record of the matter at the Department. If any of our Southern friends know of where these Bamboos were planted and how they have succeeded, we shall be glad to hear from them.

**A New Class of Grape Vines—Tuberous Rooted.**—Cochin China, which has within the past few years added many valuable flowers to our gardens, now promises a decided novelty in the way of grape-vines. The gardener in charge of the government garden at Saigon, the capital of the French possessions in that country, has made known some remarkable grape-vines found there. As they are mentioned as "vines," we infer that there is more than one species or variety; they have tuberous roots and annual stems, their manner of growth being described as similar to that of the Hop. The vines are said to run from 30 to 50 feet, and to bear clusters their whole length. The gardener, referred to, speaks of the fruit mainly with reference to its wine-making qualities, and merely incidentally states that, where he has added lime to the soil, the grapes are "very good." It appears that similar vines also grow in Soudan, in Africa, as one of the large French seed-houses advertises seeds from both countries. The tubers are now said to be on the way, and are expected to be soon on sale. We have arranged to receive some of these, and hope to thus in due time ascertain whether these singular herbaceous, tuberous-rooted vines have any value in this country.

**Are House Plants Injurious to Health.**—The old notion that house plants render the air of a room impure is so generally believed that a number of questions on the subject come to us very often. That plants at night may take up oxygen and give off carbonic acid, a poison, is well known. But a great many plants will not vitiate the air of a room to the extent that will the burning of a small lamp or the breathing of a single person. Practically, the effect of

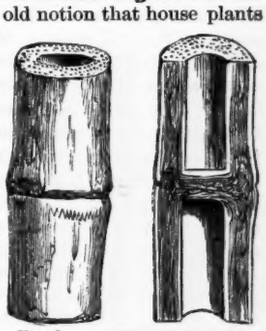


Fig. 2.—A JOINT OF BAMBOO WITH SECTION OF STEM.

house plants in this respect amounts to nothing, and need cause no concern. Invalids are often very sensitive to odors, even those that are not noticed, or are acceptable when one is in health, may be very unpleasant in sickness Flowers which have strong perfumes and other marked odors should not be present in the room of a very sick person.

## What is Cardoon?

A friend remarks: "I always see Cardoon in the seed catalogues, but never anywhere else. What is it?" It would not be satisfactory to reply, that Cardoon is own brother to

TWO BUNCHES OF CARDOON.

the Globe Artichoke, as that is nearly as rare in this country. Both are species of *Cynara* (the ancient Greek name), and are closely related to the Thistles. In appearance they are much like thistles with enormous flower heads. The Cardoon (*C. Cardunculus*), was introduced into Europe from North Africa, over two centuries ago, and though very popular on the continent, has been little cultivated in England or here. It is biennial, producing only a tuft of leaves the first year, and throwing up a stalk, and blooming the next. In good soil, the leaves will grow 3 feet or more high, with large, very thick, fleshy leaf-stalks. Some varieties are exceedingly prickly, while others are nearly spineless. The seeds are usually sown in the bottom of a well-manured trench, about a foot in depth; they are thinned to 18 inches, and when well grown the leaves are brought together and bound closely with a hay band to exclude the light and blanch the stalks, which requires about three weeks. The leaf stalks become very tender and crisp, and need careful handling, as they break readily. The appearance of the blanched Cardoon is shown in the engraving. The stalks are first boiled until tender, when the outer skin may be readily removed. They are then cut up and dressed in a variety of styles, with brown or white sauce and often with cheese. Those who become accustomed to Cardoon abroad are very fond of it. Those who eat the tubers of Jerusalem Artichoke, when cooked, will like Cardoon, the flavor being somewhat similar, though less marked. The leaves of the related Globe Artichoke are sometimes blanched, when they are called Chard, and used in the same manner as Cardoon.

## The Uses of Insect Powder.

Last month, the plants affording the Insect Powder were described, with notes on their cultivation. When the "Persian Insect Powder" was first introduced as an article of commerce, its application was mainly restricted to the destruction of cockroaches in houses. The powdered flowers, as imported, were blown into the various cracks and crevices, by means of small bellows, and was found very effective, if not in destroying the cockroaches, at least in driving them from their retreats, and in so stupefying them that they could be swept up and burned. Through the experiments, mainly of Prof. Riley, this powder has been found to have a much wider application as an insecticide than in the original method of blowing it in the form of dust, which is only practicable in the house. In the circular issued by the Department of Agriculture, these methods are described in full. Besides its use in the powdered form already mentioned, are its application as a fume, as an alcoholic extract; the stirring the powder in water, and as a tea, or decoction. Some two years ago our correspondent Jean Sisley, of Lyons, France, sent us some pastilles of this insect powder, which he stated had been very efficacious in ridding rooms of mosquitoes, flies, and similar insects. One of these pastilles burned in a closed bedroom, early in the evening, was said to destroy all the insects, while the odor would not be at all offensive. These came too late to be tested that season, and were afterwards overlooked. The circular of the Department mentions the use of the fumes of the burning powder for freeing rooms from insects, and also to fumigate furs and other materials likely to be infested. For application of the powder to insects upon plants in the open air, some of the liquid forms may be adopted. A tincture of the powdered flowers may be made, by treating with alcohol, or by employing an apothecary to make it by the method known as "percolation," an alcoholic extract or tincture, containing the properties of the powder in a concentrated form, may be produced. From half an ounce to an ounce and a half of such alcoholic extract mixed in two gallons of water, and applied by a garden syringe or pump, has been found, according to the circular of the Department, very destructive to the cotton-worm, and will no doubt be equally so on all soft-bodied insects. If the powder is simply stirred in water, in the proportion of half an ounce to two gallons of water, and sprinkled upon the plants, the application will kill all soft caterpillars. Another method is, to make a tea, by pouring boiling water upon the flowers, which for this use need not be powdered. This decoction sprinkled upon plants infested by insects, has been found very useful. Where the Pyrethrum plant is cultivated, probably this last named method, which will allow the flowers to be used without first powdering, will be found one of the simplest and best methods of using it.

**The Best Soil for Quinces.**—The writer recently came into the temporary possession of an old fruit yard and garden, that had been somewhat famous in its day as a quince orchard. Though neglected for years, and most of the other fruits, large and small, had died out, the quinces held their own, upon the principle of the "survival of the fittest." There was quite a variety of soil on the half acre or more devoted to fruits. A venerable old Virgalieu pear tree stood upon the highest and dryest part, in good condition, apparently as tough as a white oak. Here the quinces had their poorest development. A brook flowed through the premises, with a narrow border of intervale land. The vigor and thrift of the quinces improved as they approached this intervale, and were at their best immediately upon the bank, where their feet must have stood in the water for a large part of the year. Through neglect, the borers had had full sway, but as the old stumps died out, new sprouts took their places. There were forty or more quince bushes on this little patch of land, though they had stood in grass and been neglected for a dozen years. The lesson indicated is to select, if possible, intervale land in planting the quince. C.

## New Zealand Spinach.

When summer weather fairly sets in, it is difficult to get a crop of spinach. Young plants grow very slowly, and soon form flower stalks, while the leaves become tough and useless. Among a number of substitutes for spinach to be used in hot weather, one of the best we have tried is the so-called "New Zealand Spinach." We say "so-called," as it is not at all related to real spinach; that being a near relative of the Beet. This belongs to the same family with the "Ice Plant" (*Ficoideæ*) often cultivated as a curiosity. Its botanical name is *Tetragonia expansa* (*tetra*, four, and *gonia*, angle, as it has a 4-angled seed pod). It is a native not only of New Zealand, but of South America and even of Japan. Its seeds were first taken to England in 1772, by Sir Joseph Banks, who was with Capt. Cook in his celebrated voyage around the world. The plant is an annual with long-spreading branches, and thick,

THE NEW ZEALAND SPINACH.

fleshy leaves, an inch or two long, of a triangular egg-shape. The plant later in the season is much more spreading than that shown in the engraving, the branches extend in every direction, hence the plants need abundant room. The seeds are slow in germinating, and it is well to soak them before sowing; place half a dozen or so in well manured hills, made 3 feet apart. When an inch or two high, thin to two or three plants in a hill. They are very small at first, and a careless hand may mistake them for weeds. When once started they grow most rapidly,

and the hotter the weather the better they seem to like it. In gathering, take 3 to 6 inches of the shoots; the tender stem near the end may be cooked with the leaves, which should be picked from the tougher parts. New shoots quickly replace those removed, and a few plants will keep up a continuous supply. It is cooked in the same manner as spinach. The unripe seed-pods, while tender, are used for pickles.

## The Grape Vine in Summer.

Those who grow grapes for profit, or have a large number of vines, will of course have fixed upon some method of training them, and understand how this is to be carried out.

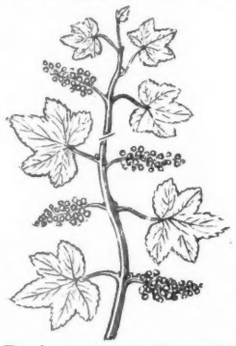


Fig. 1.—SHOOT ON OLD VINE.

All such will do well to take some standard work on the vine as a guide. Where one has but a few vines, and these often grown as much for the shade as for the fruit, he does not usually care to make a special study of the matter; still, by attending to a few simple rules, he can with a very little trouble greatly increase the quantity as well as the quality of the fruit, and at the same time keep his vines in a satisfactory condition. The time for pruning the old wood is past, and the vine now presents a greater or less number of canes upon which at intervals are green and tender shoots, that have started this spring. Of course, we now speak of the vine in general, no matter how it has been trained. As one stands before the vine, he must consider that every one of these young shoots now just growing, will, if left to itself, make by autumn, just such a ripened cane, as that from which it starts. Will there be too many of these canes? Will there be a great crowding and tangling if they all grow? If so, break a portion of them off while they are still young. If a bud produces two shoots, and they are often double, always break out the weaker one. Each shoot on a vine old enough to bear, will appear as in figure 1. Beginning below these is a leaf, with opposite to it a cluster of buds; a short distance above, another leaf with another cluster of buds, but their positions reversed, the second leaf being over the first cluster, and so on, alternately, some vines producing three and some four clusters of buds, and beyond these, instead of buds, there will be merely a tendril opposite the leaf. Observe that the whole growing vine is only a repetition of this; a portion of stem, a leaf with opposite a cluster or a tendril, another length of stem, a leaf and a tendril, or cluster, and so on to the very end. That point of the shoot, where the leaf and opposite tendril or cluster are attached, is called the *node*. A single node is shown at figure 2. When it is understood that every vine, however confused it may appear, is made up merely of repetitions of that which is shown in figure 2, the matter becomes much simplified. The tendril may be the stem of the fruit cluster, or it may be bare and used to hold up the vine. When it first appears, the tendril is nearly straight, except at its slightly hooked end, when that end comes in contact with, and catches hold of some object, it then coils in a manner most interesting to witness. When it bears fruit, there is often, as in figure 2, a bare branch ready to catch hold of something, and help sustain the weight of the cluster.

Fig. 3.—SHOOT WITH LATERALS.

It will be observed that in the axil, the place where the leaf-stalk joins the shoot, two buds will soon appear, which we will notice presently. If the shoot in fig. 1 is left to itself it will continue to grow and often reach several feet beyond the uppermost cluster. With every vine, no matter how it may be trained, it is a safe rule to stop the growth after one or two leaves have been formed above the uppermost cluster. If any one is afraid to do this, let him try it on a few shoots and leave the rest to grow. This should be done while the shoot is still tender, and its end can be pinched by the use of the thumb and finger nails. The leaves remaining upon the shoot will soon become much larger and thicker, while the fruit will also grow much larger than if left unpinched. This is a general rule to be followed on all bearing vines. In fig. 1 a line is given to show where to cut in case the vine is disposed to bear too much, a point we need not consider now. Soon after the top of the shoot has been pinched, side shoots will appear, as shown in fig. 3. These side shoots are for convenience called *laterals*, and one will appear from the axil of each leaf. If these are allowed to grow the vine will soon become a tangled mass; but they must not be broken off, altogether, but should be checked by pinching. As shown in fig. 2, there are two buds in the axil of the leaf; the lateral comes from one of these, and if this lateral be broken out, the other bud will start into growth and produce another one; this is to be avoided, as that bud may be needed next year; consequently when the lateral has produced two or three leaves, it is pinched off, leaving only its lower leaf; a shoot may start from the axil of that leaf; if so, that is to be pinched again, in the same manner, back to its first leaf. This is made plain by fig. 4, which shows a lateral that has been pinched at *a*, and a second growth has started which should be pinched back to its lowest leaf at *b*. Although it takes some space to describe these operations, they are really very simple, and if one will observe the directions the fruit will be greatly improved, and the vine prevented from becoming a confused mass of stems and foliage. The pinching should be done while the shoots are still so young as not to require a knife, but only the finger and thumb. Of course all the insects observed should be destroyed.

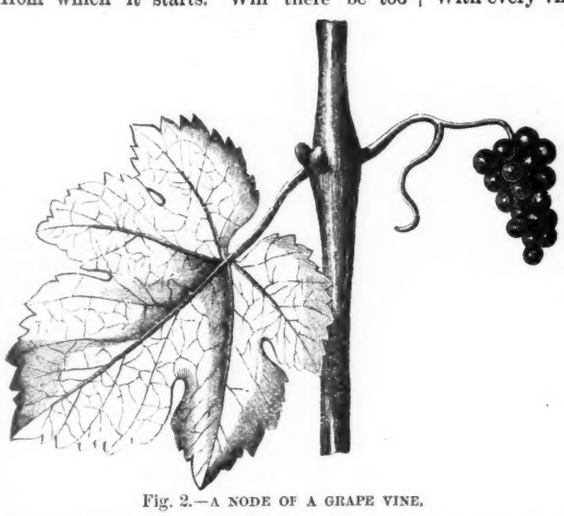


Fig. 2.—A NODE OF A GRAPE VINE.

## Staying a Vineyard or other Post.

Mr. Frank Kreiger, of Cuyahoga Co., Ohio, sends us a sketch and description of a method of staying or bracing the end posts in vineyards where wire is used. This method is used by his father, who has had forty-five years' experience in vineyard work. The same method may be adopted for end or corner posts of wire fence, if durable wood can be had for the brace, and the amount of digging be not too great. Mr. K. gives the following description for a vineyard post, 8 feet long. Bore a two-inch auger hole about 4 inches from the lower end, and into this fit a strong stick, 3½ to 4 feet long. Dig the post hole about 3 feet deep, according to the firmness of the soil, with a side trench of nearly the same depth, for the stay piece. Set the post in and fill in the soil 3 or 4 inches above the cross-piece, and lay over it two or three large stones, and fill up with earth. This method saves the necessity of wire or other above ground braces, which are always in the way. The engraving explains it.

Fig. 4.—MANNER OF PINCHING.

STAYING A POST.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## The Wastes of Country Houses.

BY L. D. SNOOK, YATES CO., N. Y.

Much is written at present about the sanitary condition of city houses and defective plumbing, sewer-gas and sewage are often mentioned in city papers. The disposal of the wastes of a country house is of as much importance as that of a house in the city—in fact more so, since there is no general

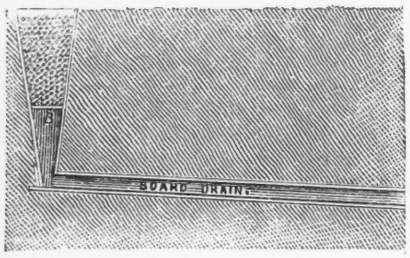



Fig. 1.—CROSS SECTION OF DRAIN.

system of sewers as there is in cities, and each house must provide for itself. Many a neat looking country house rarely has its front door opened, and when it is opened, it is, alas, too often, to allow a little coffin to be carried out; the neighbors who have gathered in a sympathizing manner, talk in an undertone of diphtheria, scarlet fever, and reverently speak of the "dispensations of Providence." Were these neighbors to go around to the back door they would perhaps find its surroundings—just like their own. The kitchen slops have been, ever since the house was built, thrown out from the door. The kitchen sink may empty its contents into a shallow drain, which leads no where, but the water soaks away as it may, and in either case the soil all around the rear of the house is reeking with slop water. No healthy growth of tree or plant can be had here, and what is worse still, the well is usually not far off. As there is a reciprocal relation between all the members of the body, so there is a direct relation between the back door and the occasional melancholy openings of the front door. There is no problem—such as the simple one of 2 and 2 make 4—more thoroughly fixed and established, than that the health of the family, whether in the costly city mansion or in the humblest cottage or log cabin, depends upon the manner in which the wastes of the family occupying mansion or cabin are disposed of. It is not necessary to argue the matter. Now, this very month, before the hottest days come on, house slops must be carried off, and all throwing of them on the ground *absolutely prohibited*. To do this now, will cost far less than to pay the bills of doctor and the undertaker, to take even a low view of it. But what shall we do? Get rid of the slops—send them off to a distance, away from both the house and the well. Two things must be done; provide a cess-pool in a suitable place, and a tight drain to take all liquids to it. The cess-pool should be at least 40 feet from either house or well. Make it large, as the larger it is, the longer it will last.

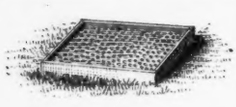


Fig. 2.—TOP OF FUNNEL.

A rude way is to get a large cask, which need not be tight; such as hardware is packed in will answer. Knock out both heads, and dig a hole deep enough to hold it; of course, provided the soil is loose and sandy. Place the headless cask in the hole with its top at least three feet below the surface. Into this put all the accumulated stones, bricks, and all such material as may be at hand, to at least half fill it. Arrange to connect the drain with it, lay some stout planks across the top, and cover them with earth. In order to make repairs if needed, take the direction and measurement from some permanent point, so that it may be found.

THE DRAIN.—This may be made of boards, six inches wide and free from knots; they are to be nailed together to form a square drain, using tar, or thick paint, at the joints. If the interior has several coats of oil or crude petroleum, it will be all the more durable. To receive the slops, a long and narrow funnel should be made as in figure 1. This is about 14 inches square at top, and tapers below to the size of the drain. A piece of plank, in which numerous half inch holes are bored, is placed at *B*, above which the funnel is filled with small stones. The upper end of the funnel has a square frame projecting about four inches above the surface as in figure 2. The waste water is to be poured into this frame, and the small stones will arrest all solid matters, and prevent them from passing into the drain. It may be desirable to have the kitchen sink discharge into the drain, the funnel of which may be in this case quite near the house, as shown in figure 3. It is well to cover the top of the drain with a screen of wire. It has been assumed that the sole object is to get rid of the house slops. If these are to be used in the garden, the cess-pool should be located with reference to this end, and it must be made water tight with its top well below the reach of frost. In some soils, an excavation of the desired size may have its bottom and sides covered by a coat of cement plastered directly upon them. Where the soil is not sufficiently firm to admit of this, then the walls and bottom must be bricked and made water-tight by a coating of cement. The top should be covered with strong planks. A pump may be arranged to

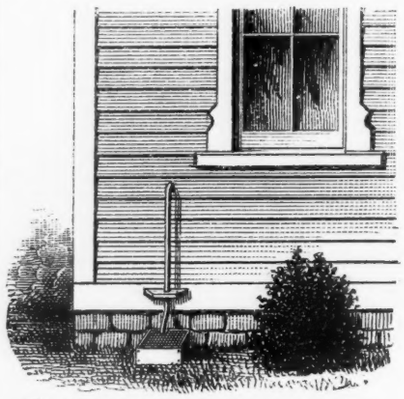


Fig. 3.—DISCHARGE PIPE AT SIDE OF HOUSE.

raise the contents of the cess-pool, which, by cheap troughs, made of two boards nailed together, may be conveyed to every part of the garden, and in one season's increased produce repay all outlay.

[The above omits one important point. As described, the drain furnishes a sort of conductor to convey noxious gases from the cesspool back to the house. This source of trouble can be guarded against by putting a trap or downward bend in the drain, near its upper end, to always be filled with the fluid, and prevent the return of gases. It may be partially remedied, and only partially, by having the drain enter near the bottom of the cesspool, and always leaving it covered by the liquid in the receptacle. The materials caught on the filter of stones must be almost daily cleaned out in hot weather, or they will decay there.—ED.]

**A Favorite Way of Cooking and Dressing Beefsteak:** Heat a flat spider or frying-pan thoroughly over a hot fire. Then unless the steak is tender, pound it well, using a hard-wood board, and a common potato masher, striking with the edge so as to break the meat fibre. Sufficient pounding will make a tough steak seem quite tender. When the meat and spider are ready, quickly cover the spider bottom with the meat, and let it sear well, but turn before it burns. It is well to cover the spider to retain the heat. Do not salt until the meat is nearly done. When cooked through and salted, add a teacupful of thin cream, and let it come to a boil. Good milk will do if one has no cream, but in this case, spread a little *good* butter upon the meat before adding milk. Use but little, and let it get thoroughly heated. Lay the meat on the platter, and pour this dressing over it. Meat cooked quickly in a hot spider, throws out a fine juice at the last, and this will not dry away or burn so easily, if the spider is covered. While the meat cooks, the cream or milk mixed and heated with it makes more gravy, and has an excellent flavor. It is certainly more wholesome than a dressing of melted butter.

## Our Daily Bread.

BY A MINNESOTA HOUSEKEEPER.

The great scarcity, high price, and poor quality of our potatoes, east and west, make it unusually important to have good bread. Potatoes are not very nutritious, and by no means an essential diet; but "meat and potatoes" seem made to go together, the starch of the potatoes balancing the fibrine of the beef or other lean meats. But potatoes are over four-fifths water, by weight, and easily dispensed with when we get used to it. We can also live comfortably, healthfully, and satisfactorily without meat, if we have nourishing bread pleasant to our taste. Many think we have this in Graham, but genuine Graham is hard to find now-a-days. It has been suggested that we secure small hand-mills, strong coffee mills, for instance, and grind our own wheat. This would be well, if we could not do better. But I would gladly dispense with bran as an article of diet. It affords no nourishment that is not now perfectly obtained by the new process of grinding, and it is quite doubtful whether all of the food elements once left clinging to the bran could easily be digested and assimilated when taken in that condition. It is claimed by some of our best authorities that bran, in its haste through the digestive organs, carries along with it much that would be assimilated and used as good building and strengthening material. This action of the bran makes Graham flour an excellent food and medicine for pampered appetites. The poor and ill-fed cannot afford to eat it.

But we need something besides white flour in our daily bread if we rely upon it as food—especially if we would have gems. Though very light white flour gems can be made, much as you would make muffins, they would prove a "slender staff of life."

I was glad to note in the April *American Agriculturist* the call of our English neighbor for gems. I suppose he wants the genuine light and sweet cold water Graham gems, now only a pleasant memory to most persons who tasted them years ago, before the adulteration of Graham became common. We have been using for a few weeks a flour purporting to be the whole wheat ground to a fine flour with only the bran removed, and it professes to contain all of the nourishment originally stored in the wheat in a form easily assimilated. I believe in the theory, but lost some enthusiasm when testing it practically. It had an odd taste, especially when made with yeast, which we called bitter at first. But we have got used to it, and prize it especially on account of the delicious water gems it makes. After a month's trial we deem it a very satisfactory food in all respects. We liked our water gems from the first, and have hardly eaten a breakfast without them for over three weeks, liking them better and better as we mix them thinner and thinner. I find the best proportions three cups of water, and four cups of sifted "Entire Wheat Flour," sifted in a little at a time. Have the gem irons very hot, butter them, fill nearly level with the batter; bake partly on the oven rack, and partly on the bottom, baking thoroughly. Sweet milk is better than water, but the water-mixed gems are a daily delight in our house just now. They rise but little, the flour swelling in the thin batter as it cooks; they are not the least sticky when fully done, but have a fine spongy texture and excellent flavor. Those unused to water gems may prefer using sour milk; with eggs freely added, the best possible pancakes are made from this flour.

I disagree with those who think that white bread

is necessarily "flat and insipid," though most of it is so. There always should be a decidedly sweet taste to light bread from fine white flour. Sometimes this is concealed by too much salt, which many of us never add while preparing and cooking flour. Sometimes the yeast overpowers all other flavors, but usually the sweetness is lost by excessive fermentation which often takes place in the effort to have the bread very light.

Our English neighbors are making a great stir about a much needed Bread Reform. They want something better than the pale insipid bread of their bakeries. The Bread Reform League members embrace many well-known influential names. They recommend no particular brand of flour, but *they* insist that bread made from wheat, our best cereal, shall contain all of the nourishing elements of the wheat. Their pamphlets indicate that their Graham or coarse bread is no better than what we have here. The several companies in this country furnish more nutritious flour than that common in our markets, better than the ordinary patent and straight white flours, and the mixtures called "Graham." Sometimes five bran coats are removed, and sometimes only one. I have tried several kinds, and am now in a mood for experimenting farther. Habit is strong, and those sending out flour containing elements unfamiliar to the consumers of white flour bread, should urge a long trial before judgment is pronounced.

## Reading for the People.—Book Clubs.

N. S. TOWNSHEND, COLUMBUS, OHIO.

One of the objectionable features of many country homes is the comparative absence of instructive books, particularly of the live fresh books of the time. In cities and large villages, libraries are formed from which persons who are unable to purchase books may obtain good reading at small expense. In the country the families of many hard-working farmers have little opportunity to see standard works, either literary or scientific. Perhaps these families see a weekly paper, but such papers are usually devoted to the advocacy of special views, or interests, and the family that sees only a single paper will be likely to illustrate the adage that "a little learning is a dangerous thing." Entertaining and profitable reading is one of the great needs of the country and farm life, and therefore any plan by which this need can be supplied is worthy of consideration.

Many years since it was the writer's fortune to live in a rural district, far from city or village library; at the same time it was his privilege to enjoy the benefit of an arrangement for obtaining books which was so simple, economical, and satisfactory, that he gives a sketch of it. The plan was not original; other places have had the same; perhaps it was not the best that might have been devised; but it answered an excellent purpose.

In the township of Avon, Lorain Co., Ohio, about A. D., 1834, a few neighbors who felt the need of other reading for their families than that supplied by weekly papers, associated themselves under the name of the "Avon Reading Society," afterwards changed to "Avon Book Club." A president and secretary were chosen, terms of membership agreed upon, and provision made for annual meetings, and the adoption of by-laws. At the outset 17 persons joined the association, each paid an entrance fee of $2, and agreed to pay an annual fee of $1. By the rules each member could propose one book for purchase; if of general interest, and not too expensive, it was approved by vote. When as many volumes had been proposed and approved as the club numbered members, the secretary, who was also treasurer, took the funds and purchased the books. Before their distribution the books were covered with tough paper, and the plan of distribution was written upon the cover; sometimes the books were covered with muslin when the plan of distribution was written upon a blank leaf. At the top of the cover or page was written, "To be kept twenty-one days," below this three lines half an inch apart were ruled from top to bottom near the center of the page, dividing it into four spaces, a broad one on either side, and two narrow ones between. In the broad space on the left hand the names of members were written, not alphabetically, but in the order of their residences from east to west, beginning always with the name of the member who had proposed the book. The name of the secretary appeared twice; first according to his residence and again at the bottom, so that all books might finally be returned to him. In the second space, to the right of each name, the date when the book was received was written, in the next space the date when forwarded, and in the space to the right of the dates remarks were recorded, if the book had been injured or kept too long, for which the rules prescribed a small fine. The distribution of new books was made to all the members upon the same day, to every member one book; after three weeks every one forwarded his book to the member whose name was next below, and upon the same day he received another book from him whose name was next above. These changes were usually made on Sunday, for, although the members of the club did not all attend the same place of worship, the churches they did attend were not far apart. The original number of members was found convenient because seventeen volumes, each kept three weeks, would all come again into the hands of the secretary in fifty-one weeks, and be ready for sale at the annual meeting. When the number of members was less or more than seventeen, no serious inconvenience was experienced, for in one case the meeting and sale were held sooner, and in the other case the meeting was delayed until all the books had completed their circuit. The books, after being read, were sold within the club to the highest bidder, often bringing considerably more than half the original cost. If less was offered for a volume than one-third its cost the member by whom it had been proposed was by the rules expected to take the book at one-third the cost. The money derived from the sale of books, together with the annual fee of $1 from each member, provided funds for the purchase of new books, which were proposed, approved, bought and distributed as already stated. If a less sum than usual was received from the sale of books, or if more expensive books were to be bought, a small assessment made up the deficiency. The books bought by the club embraced considerable variety, History, Travels, Biography, Poetry, Fiction, Agriculture, and Science were all included. The most popular books, as well as those most criticised, were likely to be bought; by this course the club kept along with the progressive thought of the time. In order to learn what books were published, and what would be desirable to purchase, arrangements were made for receiving catalogues from the leading publishers. Some members of the club also took quarterlies or monthlies, and had the benefit of their reviews and book notices.

The Avon Book Club with little interruption or change has continued in operation to the present time, a period of more than forty years. The pleasure afforded to old and young from the reading of its books, the value of the information conveyed, the mental stimulus supplied to the families that shared the benefits of the club for so many years, cannot be readily calculated. The books sold by the club from year to year have laid the foundation of many household libraries. The influence of the club undoubtedly extended beyond the families of its members, although by one of its rules the books of the club could not be loaned. No result has been more noticeable than the desire it excited in the minds of many of the second and third generation to obtain better educational equipment than their parents or grand-parents had been able to secure. Another effect upon some of the young who were directly or indirectly benefited by the club will not excite surprise,—many of them learned of broader and more profitable fields for their activity. Some entered the professions, some went to other parts of the State or to other States, and became successful business men; some have been identified with the benevolent and educational institutions of the State. Some have done service in the Legislature of Ohio and other States, and in the Congress of the United States. Some responded promptly to the call of the country at the outbreak of the Civil War, and of these a few whose memory is tenderly cherished found rest in soldier graves. It must not be inferred that the club lost its interest in Agriculture; as proof that it did not, the fact may be stated that two of its members have been members of, and one the president of, the Ohio State Board of Agriculture.

Perhaps it will be thought that a readier way to supply a community with reading would be to raise the necessary funds, and at once establish a good library, from which each contributor might draw when and what he pleased. Doubtless a good library has advantages, but the plan here described has the important feature of requiring but little money at the outset, so little, indeed, that there is probably not a single neighborhood in the whole country in which the necessary amount could not be raised. This plan has an advantage in inducing its members to read more regularly and more broadly than many would if left entirely to taste and inclination. Unless some better plan can be suggested for the tens of thousands of country places which have no library privileges, the plan above described may answer a valuable purpose, and be worthy of general adoption throughout the country.

## Barrel Frame "Easy Chairs."

We have given in past years quite a variety of forms of easy chairs, made from barrels, boxes, hollowed logs, etc. In one of our exchanges from al-

Fig. 1.—THE CHAIR FRAMED.

most exactly the opposite side of the world (the *Illustrated News* of Sidney, Australia), we find engravings of chairs differing a little from any we have given, and we change these somewhat to the forms here shown in figures 1 and 2. A large barrel or small hogshead with iron hoops, is cut to the form shown in figure 1, the hoops being first riveted to the staves. Strips or cleats nailed on the inside at

Fig. 2.—THE CHAIR COMPLETE.

any desired hight, support the upper barrel head as a seat. The barrel is mounted on a frame of two pieces of wood with casters underneath. A broader firmer base would be formed of three or four pieces. The supporting brackets are added in front.—Fig. 2 shows how the whole may be upholstered with calico or any other material at small cost. All the above work of "Easy Chair" making may be done home and involve very little expense.

# BOYS & GIRLS' COLUMNS

## The Doctor's Talks.

As many of my young friends have asked me to tell them about plants and flowers I am very sure that they gave some attention to what I said last month. I took the Buttercup as a starting point, for the reason that there is scarcely any place in the country, north, south, east or west, even to the very shore of the Pacific, in which some kind of Buttercup can not be found. In the last talk I tried to make you understand one very important fact — that all flowers, however different and unlike they may seem to be, are all made upon one general plan, and illustrated that plan by a figure of the Buttercup. Now, to look back a minute upon last month's Talk. It was shown that the Buttercup had first (and best seen in the bud), a set of five green leafy parts, the *calyx*, of which the separate parts are *sepals*; next above these five larger and more showy parts (in the Buttercup usually bright yellow), the *petals*, which together make the *corolla*. Next within the corolla, there are (in the Buttercup) many bodies, called *stamens*: these consist of a stem (the *filament*), which has at its top a two-lobed case (the *anther*), that produces a fine dust (the *pollen*). In the very middle of the flower are some differently shaped parts called *pistils*. It was also stated that these pistils, after the pollen had acted upon them, would produce seed pods, each in the Buttercup producing a single seed. Why do I repeat all this? Because, if you learn this well and understand it, you will learn a great deal about plants, and find, after you have understood the Buttercup, its parts and their uses, that you will be able to understand other flowers. You will recollect that in the Buttercup all of the petals were alike, of the same shape and size, but the flower of the Pea was brought in to show that, though there might be the same number of petals, these could be so unlike in size and shape as to make the flower of the Pea very unlike that of the Buttercup, and the same is true of many others.

Fig. 1.—ANEMONE FLOWER.

Fig. 2. STAMINATE WILLOW FLOWER.

Now please attend once more, and look at your Buttercup flower, or if you have none at hand, look at the engraving given last month, but always have the *real* flower when you can get it. I know you do not like repetition, but it is the only way to make sure that you understand a thing. Then, with Buttercup flower in hand, note first, the green *calyx*; next the yellow *corolla*; next, the many *stamens*; and in the very center, a number of *pistils*, and observe that all these parts are attached to the end of the stem, called the *receptacle*. Just here I wish to repeat what I said last month, that these are *all* the parts that any flower has, and no matter how unlike to those of the Buttercup they may seem. *Every* flower, if carefully examined, will have either all, or some of these parts in one shape or another. There are many ways in which these parts will differ: the Pea given last month, shows one of these. Bear in mind now these different parts; the calyx, the corolla, the stamens and the pistils as shown in the Buttercup. Here are four different series of parts, and one or more of these may be absent. Let us take an own brother to the Buttercup for example, the *Anemone* or "Wind Flower," (fig. 1), one or more kinds of which will be found almost everywhere among spring flowers. You will find that this has but one series of floral envelopes (see last month), and though this is white and petal-like in all the Anemones, it is regarded as the *calyx*. In most flowers there is both calyx and corolla, but when there is but one of these it is called the calyx. It was stated last month that the calyx and corolla were called the *floral envelopes*, because they surround the other parts, but they are not essential. The corolla and the calyx may both be absent, but if the stamens and pistils are present, the flower will perfect its seed, because it has these *essential parts*, the stamens and the pistils. But some flowers go still further than this, and lacking both calyx and corolla, they in some plants have only stamens, and in others only pistils. You can find examples of this in the Willows. The "Pussy Willows," as those are called, that produce their flowers very early in the season, before the leaves appear, will all be gone by the time you get this, but there are many willows that bloom this month, after their leaves open, and you can no doubt find some of these on the margins of swamps, and may examine their flowers. The flowers of the Willows are in what are called *aments*, or *catkins*. There is no calyx or corolla, but each flower is merely a couple of stamens (fig. 2), or a pistil (fig. 3), with a leafy appendage called a bract, and these bracts together on a short stem make the catkin (fig. 4). Here you have flowers without calyx or corolla; indeed in some trees only stamens, and in others only pistils are borne—yet they are just as much flowers as those of the Buttercup—only they have not all the parts. This illustration will show you how flowers may vary by not having all the parts. Now let us look at another kind of variation. In the Buttercup given last month, it was shown that the petals were all separate; let us now suppose that the petals, instead of being broad at the top were pointed, and grew together by their edges for half way up; we should then have such a flower as that of the Tomato (in fig. 5). Where the petals are united for their whole length, we get a great variety of tubular and funnel-shaped flowers, of which the Morning Glory (fig. 6) will answer as an illustration. Not only do the petals of the corolla unite, but the sepals of the calyx do the same, and we get a great variety of forms from this cause. Still another set of changes is produced by the union, or growing together of those parts, which we have seen in the Buttercup are separate. The calyx and corolla may grow together in one piece, and the calyx, corolla, the stamens, and even the pistils may all be united. It is now too late for you to examine the apple-blossoms, and you must take our engraving instead. If you were to take an apple blossom and cut it down through the middle, (as in fig. 7), you would see that the calyx and all other parts were for some distance all grown together to make a solid mass that in ripening, becomes the fruit which we know as an apple. You will find a great many other variations from the general plan given in the Buttercup, but if you recollect that the parts of each set—as calyx, corolla, etc., may differ in shape and size (as shown last month in the pea), that the parts in each set, as the petals, the sepals, etc., may grow together among themselves, or that the parts of one set may be attached to those of another set, as shown in the apple (fig. 7), you can see what a great variety of forms may be produced, and yet all of them be according to one general plan. There is one set of flowers that I have no doubt will puzzle you, at first. I refer to those like the Sunflower and the common Ox-eye Daisy, or White-weed. Flowers of this general structure are to be met with, from the common May-weed by the road-side to the enormous Sunflower. Flowers of this kind are troublesome to beginners, until they learn that they are not single flowers, but collections of flowers.

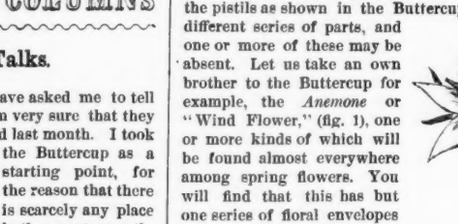


Fig. 5.—TOMATO FLOWER.

Fig. 6.—MORNING GLORY FLOWER.

Fig. 8.—A HEAD OF COMPOSITE FLOWERS.

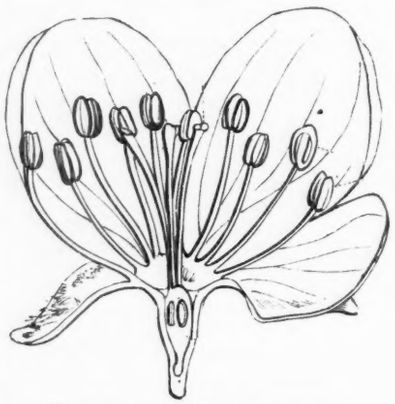


Fig. 7.—APPLE BLOSSOM CUT IN TWO.

Figure 8 shows the general appearance of these flowers, so called, with a dense mass in the center, surrounded by spreading "rays," as in the Sunflower and its relatives. Figure 9 shows a head like that in figure 8, cut apart, leaving but a single flower of each kind in place. The left hand flower is formed as we may suppose by the edges of five petals growing together to make a tube. On the right, at the margin, we have a broad flower which is like the tubular one, only the tube is split open and spread out, to form a more showy flower.

These small flowers, gathered in heads in this manner, will be found very numerous late in the season. They are called *Composite* flowers. In the Sunflower and Ox-eye Daisy you have two kinds, the tubular ones in the center and the flat ones on the margin. In the Thistles, the flowers are all tubular, and in the Dandelion, and several others, all the flowers in the head are flat.

Fig. 3.—FEMALE FLOWER. Fig. 4.—WILLOW CATKIN.

Fig. 9.—PORTION OF A FLOWER HEAD, WITH A "RAY" AND A "CENTRAL" FLOWER.

There is a great deal more that might be said about the wonderfully varied shapes of flowers, but I trust that

these illustrations will show you how all the unusual forms may be traced back to the simple structure of the Buttercup. I can say no more about the shapes of the calyx and the corolla for we must consider the more important changes that take place in the seed vessel or fruit.

## Riding Horse to Plow Out Corn.

Wonder if our farm boys of the present day have any idea of how much the improvements in farm machinery have done for *them*, as well as for their fathers! Recently the writer revisited, for the first time in about forty years, the old homestead, and there he saw a man "cleaning" corn with a nice cultivator, drawn by a horse, with handles to guide it close to the rows, and it did the work quite as well as it was done in that same field fifty years ago, by running a plow twice between the rows, and then following with a good deal of hard work with the hoes.—But what came to mind most vividly was the riding of the horse, as, with the narrow plow then in use, and the many stones in the soil, it was as much as the man could do to keep the plow from bobbing side to side and destroying the corn. The boy that rode and guided the horse (that's the writer) remembers, almost with a returning ache, going back and forth, back and forth, all those long hot June days; what trouble it was to turn round at the ends without trampling down one or more thrifty corn hills; and the being often thrown on the horse's neck, and not unfrequently to the ground, when the plow struck a fast stone. How we felt when beginning the first row of a ten-acre field, and knew it had to be gone all over two, often three times during the season, twice in the row.

"Didn't you have a nice soft saddle to ride on?"

Oh, no; the saddle was two or three folds of a horse blanket, with no stirrups. How we boys did have to shift round, first on one side a little, and then on the other; sometimes sitting sidewise, if there was a row known to be clear of stones; sometimes, indeed, one had to go to "choring" or other work for a day, if not into "hospital for repairs." Some boys of to-day know well, by experience, all about the above; but most of them know nothing about it. They can hardly guess how much improvements have done for them.

### Two Problems About the Above.

Those corn-fields were usually 40 rods square (ten acres). The rows were three-and-a-half feet apart. The plow went back and forth between each two rows. 1st. How many miles did the riding boy travel in plowing out one such a field of corn twice?—2d. If the horses travelled 3 miles an hour, 11 hours a day, how many days' riding was there?—Generally, a span of horses was used by each plowman and rider, first one horse awhile, and then it rested while the other horse took a turn. This boy had no span mate to change with *him*. The plowing began very early, to get some rows ready in advance for the hoers, and those days were "awful long."

## How Large is Alaska?

Last month we took a look at Italy, and at the size of Mexico. How many of our younger readers, or older ones even, have any definite conception of our piece of land tucked away up in the north-west corner of the continent, named Alaska, which the United States purchased of Russia in 1867, paying for it seven million two hundred thousand dollars ($7,200,000). Look on the map, and you will see that it extends north and south about 700 miles, between latitudes 60° and 70°; and that its main part lies between about 141° and 168° of west longitude, covering 26 degrees. But the lines of longitude keep coming nearer together, all the way from the equator to the North Pole when they run out, so that in the middle of of Alaska a degree of longitude is only about 25 miles, and the distance across its middle, east and west, is only about 700 miles. It is somewhat square, with a long narrow peninsula, like a tail piece, running off south-west 300 or 400 miles to a point.

Alaska borders on three seas, the Pacific and Arctic Oceans and Behring Sea, and the coast line measures about 4,000 miles. The River Yerkon (which the Russians called the Kwickpak) rises in British Columbia, is over 1,800 miles long, is over a mile broad 600 miles up, and is navigable by light-draught steamers nearly 1,400 miles from its mouth. The Kuskoquim River has been explored 600 miles from its mouth. There are other quite large rivers. The highest mountain in North America, we think, is Mount Elias, in Alaska.

We have known little about Alaska until just now. At the recent census-taking, men were sent up there to find out more concerning it. Their maps and figures are not yet printed, but we learn that, with the Islands belonging to it, Alaska covers about 565,868 square miles, or 362,151,680 *acres*. So we paid Russia a very trifle less than *two cents an acre*. Whether this was cheap or not is yet to be learned, but probably it was, as there are good fisheries, minerals, fine timber, etc.

How can we think of the real size? Let us see. Well, Alaska is ten times as large as the great State of Illinois. Or it is 8½ times as large as all the six New England States. Or it is two-thirds as large as all the United States east of the Mississippi River. Or it is as large as all of our country east of the Mississippi, north of the southern line of Virginia and Tennessee. Or Alaska is as large as all New England, New York, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, and one-third of Nebraska thrown in.

About the population of Alaska we can not say much. The census men estimate that there are, in all the territory, about 392 white men, 1,683 Creoles, or those having part Russian and part savage blood.; and 30,614 savages —making the total population 32,689. If divided equally between them there would be over 17 square miles, or about 110,800 acres for each one of the population, young and old. There is no territorial government yet established, but Congress now in session is talking about organizing one.

## Our Puzzle Box.

### THE SHIPWRECK PUZZLE.

A ship was caught in a storm, her rigging was swept away, she sprang a leak, and began to sink. The captain ordered the boats lowered, but such was the force of the storm that only one boat was seaworthy. The crew consisted of thirty men, fifteen white men and fifteen negroes. The boat would only hold fifteen men, the rest must perish. The captain drew them up in line, and told them he would begin at the head and count; when he reached the foot, he would begin at the head of the line again. Every tenth man was to be thrown overboard. The crew agreed. How did the captain arrange them so that every tenth one was a negro?

Take backgammon men or black and white buttons, and arrange them in a row to find the answer. We think it will take longer than you imagine. This was told to me by an old sailor. I think it has never been in print.

D. A. K.

### ANAGRAMS.

1. Their woes.
2. A slide purse.
3. Is Abe clever?
4. Magic dot.
5. No mere ices.
6. One is a brig.
7. Actors' pet.
8. A fat chin Dr.
9. Gusty one.
10. Crab holes.

### SQUARE WORD.

A singing bird.
A tropical plant.
A beautiful flower
Part of a ship.

ISOLA.

### PATCHWORK.

(Explained on page 27, January Number.)

1. To interweave, to form of platted twigs.
2. Deck on which cables are stowed in ships.
3. Beginning, source.
4. To provide, to buy provisions.
5. To form with ridges, like quills.
6. Weak and slender.

### METAGRAM.

Fill the blanks with words made from a word of six letters.

(EXAMPLE.—Fill the following blanks from the word *daisy*:

Ellen —— it was —— —— —— for her when she had to —— "no." Said, a, sad, day, say.)

As I walked through the —— I saw a wild —— and a piece of ——; I took the latter to a —— to have it —— in a ring —— my father. It —— him to wear it, and he frequently takes it off to —— himself; he says perhaps his finger will be smaller when the —— comes. He is stationed at the ——.

### CROSS-WORD.

My first is in anguish, but not in woe,
My next is in feather, but not in bow,
My third is in shilling, but not in dime,
My fourth is in murder, but not in crime,
My fifth is in parsnip, but not in beet,
My sixth is in ankle, but not in feet,
My seventh is in venison, but not in ham,
My whole is no counterfeit, fiction or sham.

## Answers to Puzzles in the April Number.

NUMERICAL ENIGMA.—Do little helpful things, and speak helpful words whenever you can.

CROSS WORD.—Godliness.

RIDDLE.—The letter S.

ANAGRAMS.—1. Intercession. 2. Imperial. 3. Tolerate. 4. Remedial. 5. Rebounding. 6. Detrimental. 7. Sentimental. 8. Desperate. 9. Peppermint. 10. Resources.

DIAMOND.—

T
M I T
C A M E L
T I M B R E L
C O R A L
E E L
L

LETTER ENIGMA.—The letter S.

ZIG ZAG.—Flower Honeysuckle. 1. Hog. 2. Dog. 3. Pen. 4. Hen. 5. Yew. 6. Ass. 7. Gnu. 8. Ice. 9. Kid. 10. Old. 11. Die.

DECAPITATIONS.—1. Glass — lass. 2. Maid — aid. 3. Fowl—owl.

## Answers to the "School Children Problems" in May *American Agriculturist*:

No. 1: 11,596 miles, and 1,556 feet over.

No. 2: Three times across the continent, and 1,096 miles over; or nearly 3½ times across.

No. 3: $14,541,753.55.

No. 4: $398,750,189.45.

No. 5: 79,750 farms, and $189.45 over; or 79,750 farms, and 3½ acres more, with a plot 8 feet square besides.

No. 6: 1.530,710 years, and 157½ school days over.

## Long Days.—How to Shorten Them.

To most Boys and Girls the days seem a great deal longer than they do to most grown-up people, and they generally seem longer to boys than to girls—not always. Young people have lively imaginations, and bright hopes and anticipations of something in the future, and they are anxious for time to fly swifter than it does. But our "note of passing time" depends a great deal upon what we are doing, how much we want to do before noon, or night, and especially how much we have to *think about*. Older people, full of business or work that they are anxious to finish, and with much to occupy their minds, feel that time flies too fast. Boys engaged in fishing, or some interesting sport, do not find the days long; but when following the harrow, or at other steady work, they do find the days very long—yes, very long. So do the girls, when rocking the cradle for hours, or in other steady occupation. The girls, however, generally have more variety, have their dolls, their patchwork, etc., and think less about the hours and minutes.—The writer of this, when a boy, had a great deal of harrowing to do, and oh how long were the days of going round and round and round those fields that seemed very large then. But when the Sunday School Library came in, and he could get plenty of books, and also read those drawn by his brothers and sisters each week, he used to carry one of these with him in a cloth wrapping to keep it clean, and whenever the team stopped to rest, catch a few paragraphs of history or description. This gave something fresh to think of every hour, and it shortened the days wonderfully. What was read then was so much thought over that it has been well remembered and very useful ever since.—Our recipe for shortening the days is, to get plenty to think of all the time—by reading good books, not fictitious stories, but histories, descriptions of common things, etc.—We try in these columns to give our young readers something to think about. Let us see what we can learn

### About Common Salt.

All of you know how it looks and how it tastes. If you use even a small magnifying glass, or microscope, you will see that it is made up of very beautiful little crystals of regular form, though in ground table salt these are broken into very irregular pieces. In unground "Rock Salt," you see these crystals in large size.—But

#### WHAT IS SALT MADE OF?

If we put salt in a cup and pour on it a little sulphuric acid (oil of vitriol), a yellowish gas will rise up, a very little of which will set you to coughing if breathed with the air, and to breathe much of it would be fatal. This gas is called CHLORINE. It it about 2½ times as heavy as air. It destroys most colors, and is therefore used for bleaching colored articles white.—By another more difficult process, the chemists will get out of salt a very interesting *metal*, which is called SODIUM.—It looks so much like pure Silver, that you can hardly see any difference. It is pretty hard when cooled down to zero, but at ordinary temperatures it is as soft as beeswax. It is very light, so light that it will even float on water. Its specific gravity is .935 to .972, averaging, say .95, that is, a cup of water weighing 10 ounces, would weigh only 9½ ounces if filled with the metal Sodium.

#### A WONDERFUL CHANGE.

Now, if we put together 23 ounces of this pure metal *Sodium* and 35½ ounces of that very noxious gas *Chlorine*, they will unite perfectly, and both be entirely changed In fact, there will be 58½ ounces of pure *salt*, just such as we use on the table. Usually, in crystalizing, salt catches and holds little particles of water, and when heated, this water expands and bursts the crystals with a snapping sound, like the bursting of so many little steam boilers. There is

#### A GREAT DEAL OF SALT IN THE WORLD.

On the average, every gallon of ocean water contains about 4 ounces of salt. Drying out the water leaves the salt. It has been estimated that if all the salt in the ocean was separated, it would form a mass of 3,000,000 cubic miles, or a great block of salt 100 miles wide, 1,000 miles long, and 30 miles high. It would cover all the great States of New York and Pennsylvania, and most of New Jersey, with a solid block of salt 30 miles high. Or it would cover the whole of the United States and Territories (except Alaska,) with a solid block of salt one mile thick!

#### TO GET SALT,

they dry out the water by the sun's heat or fire heat, and the salt is left.—Many salt springs exist, and a vast supply of salt water is found by digging wells down to it, as at Syracuse, N. Y., where from six to ten million bushels of salt are produced every year, and from 30 to 50 gallons of the salt water are required for each bushel.—But having told you what salt is, and about salt water, we must tell you about mines of solid salt in another number, including our visit to the Cracow Mines in Poland, which you have often heard of, no doubt.

## Some Very Fine Lines: Nobert's "Plate" or "Lines."

One of my young friends, "M. M.," has been reading about the Microscope, and has found a reference to "Nobert's Plate," or "Nobert's Lines," and would like to know what they are. I think that these lines of Nobert are among the most wonderful productions of human skill, and in the hope that they may interest other young-sters, I will try and explain them. Formerly, in testing the magnifying power of a microscope, certain minute natural objects were used. There are some creatures found in fresh water, the shells, or what answers to shells, the solid parts of which have lines and markings which only microscopes of the highest power would show. Within a few years, Mr. Nobert has come with his "lines," and has shown that he can make lines, or rulings, upon glass, so close together that the most powerful microscope can not "resolve them," as the microscopists say, that is, allow them to be seen distinctly and be counted. The glass is ruled by a fine diamond point, moved by machinery, in lines side by side. We find a great deal is written on the "Wonders of the Microscope," but I do not know of anything more wonderful than the fact, that glass has been ruled with lines so fine, so close together, that the most powerful microscope has not been able to show them, that is has not been able to show the lines distinct. Nobert's "plate," as it is called, is ruled in bands of lines, the lines in each band being nearer together than the previous ones. There are, I think, nineteen such bands in all, some of which no microscope has yet been able to make out; but it is hoped that as improvements are made in microscopes they will be seen some day. Some wonderfully fine writing has been done upon glass. A good illustration of this delicate work is that by Mr. Webb, of England, who has written the Lord's Prayer on glass, in letters so small that more than eight Bibles could be written, in the same hand, in the space of a square inch! It almost makes one's head dizzy to think of it, so much being put in so small a space!

THE DOCTOR.

THE FISHERMAN'S DAUGHTER PLAYING IN THE WATER.

## The Fisherman's Daughter.

Nettie was the daughter of a fisherman, who every morning started out in his boat, and Nettie would sit upon a rock and watch until the white sail was a mere speck in the distance, and soon could be seen no more. She knew that late in the afternoon she would see the white speck again, that it would come nearer and nearer, when she could wave her handkerchief, a signal which her father would answer, and shortly he would come to the shore with his boat-load of fish. But between the starting out in the morning and the return towards night was a very long day to Nettie. She was an only child, and as there were no other houses very near, she had no children playmates. Her mother was busy all day, and Nettie was left to amuse herself. She was very fond of the water; there was a little stream not far from the house, which in some places noisily rushed over the stones, and in others made deep still pools, and finally went on its way to the sea. It was the child's great delight to follow up this stream, and she could always find amusement upon its banks. At times she would pick the Buttercups and other wild flowers, and throw them into a rapid part of the stream, and see them chase one another down. Again she would bring a bit of bread in her pocket and throw the crumbs into some of the deep places. It was great fun to see the little fishes snap at these crumbs, and catch them before they had fairly struck the water. If Nettie was without any other children as playmates, she was not alone; the big Newfoundland dog "Rover" always went with her; were it not for this, her mother would certainly not have trusted her so long away. "Rover" and Nettie were great friends, and he never let her go out of his sight. One afternoon, as the fisherman came towards the shore, there was no little girl with a signal of welcome; this surprised the father, who hastened to make a landing, and rushed to the house. Nettie was not there; father and mother were now both alarmed, and started for the banks of the stream. After a few calls there was a bark from "Rover"; Nettie was upon the grass, weak and faint, and the faithful Rover was near her and licking her face. The little girl, in feeding her favorite fishes, had fallen into a pool where the water was deep, and the dog had plunged in and caught and saved her. These Newfoundland dogs are famous for their intelligence and for their ability to swim, and the instances in which they have saved the lives, not only of children, but of grown persons, are very numerous. It is not necessary to say that Nettie thought all the more of her strong and watchful playmate and guardian, and of course "Rover," if he could think, felt an increased interest in the child, which he had rescued from the water.

## ASKED FOR BREAD AND GIVEN A STONE.

Many of the self-raising flours and bread preparations sold for baking purposes, are not made it appears from cream tartar at all. The composition and process of manufacture taken from the records of the Patent Office at Washington, of a well-known manufacturer, is of the most loathsome character. This is the formula:

500 POUNDS BURNED AND GROUND BONES are placed in
400 POUNDS SULPHURIC ACID (Oil of Vitriol), freshly diluted with
1,000 POUNDS WATER, and stirred from time to time for three days. The paste is mixed with farinaceous material, or with freshly burned gypsum, or with stearine, and dried and pulverized. * * * * This pulverized acid is to be used with bicarbonate of soda in baking powders.

Bones of defunct animals gathered from, in and about the great cities, on battle fields, and wherever else they may be found in quantities. These bones are reduced to a powder with sulphuric acid, and this powder is the cheap substitute used in self-raising flours and yeast powders in lieu of the wholesome and more expensive cream tartar.

The following article is copied from one of the leading daily papers of St. Louis, headed, *A Yeast Powder Investigation:*

"A complaint, signed by a large number of citizens, has been filed in the office of the Health Commissioner, alleging that the yeast factory * * * on the corner of State and Mallett Streets, Carondelet, was a nuisance, and asking that it be investigated. It is claimed in the complaint that the establishment used large quantities of bones in its yeast preparations, and that the bones are frequently brought there with putrid flesh sticking to them, causing unpleasant odors in the locality. A sanitary officer visited the factory, and reports that while he discovered no flesh on the bones, he discovered a large quantity of bones and obtained a new and interesting insight into the manufacture of yeast powders entirely unknown to him. He states the process consists in grinding the bones into a powder, and then mixing acids with the powder, producing a compound highly dangerous to health. The matter will be investigated by the Board of Health."

No article of daily food appears to be so brazenly and persistently adulterated as that of yeast powders, and the so-called self-raising flours appear in the same category of fraud. We know pure baking powder can be had, for at the time Dr. Mott, the government chemist, exposed the adulteration of baking powders and flour in the *Scientific American*, the Doctor made special mention of having analyzed the Royal Baking Powder and found it composed of pure and wholesome material. This powder, says the Doctor, "I use in my own kitchen."


*World's* **ONLY** *Manufacturer of*

**WHEEL CHAIRS**

Exclusively.—ALL Styles and Sizes for use of

**Invalids and Cripples**

Self- and secondary hand propulsion, indoors and out. Comfort, durability, and ease of movement *unequalled*. Patentee and Maker of the "Rolling Chairs" pushed about at the Centennial. For Illustrated Catalogue send stamp and mention *American Agriculturist*. SMITH WHEEL CHAIR CONCERN, 162 William St., N. Y.

**CHILDRENS SHOES WEAR TWICE AS LONG with the beautiful**

**A.S.T.Co.**

**BLACK TIP UPON THEM. Ask your Shoeman for them.**

THE

**WATERBURY WATCH.**

**PRICE $3.50, by MAIL.**

Stem Winder. Circulars with full particulars free.
**CUMMINGS & CO., 38 Dey St., New York.**

WANTED.—By a firm having an Island near the West Indies, a thrifty Agriculturist or Gardener to go there for 2 years or more, with wife and sons, of sufficient age to assist, to take charge of property, raise produce, &c., &c. For particulars, address, Box 1665, Boston, Mass.

**ESTEY ORGAN**

**J. Estey & Co.**

**Brattleboro Vt.**

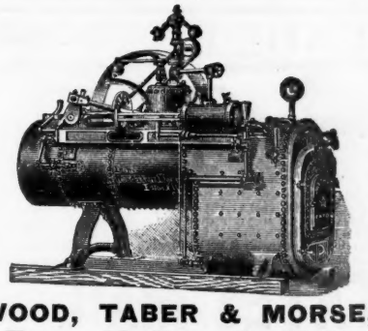
Our new Illustrated Catalogues, with full descriptions of many elegant and varied styles sent free.

**We Want Five Thousand Live Agents in New York, New Jersey, and Pennsylvania,**

**TO SELL THE EAGLE CULTIVATOR, LANSING SPRING-TOOTH HARROW, "A. B. C." RIDING GRAIN DRILL, BARNES' REVOLVING HAY RAKES, THOMAS' SULKY RAKES, and SOUTH BEND CHILLED PLOWS.**

Send for Circulars and Terms.

**A. B. COHU & CO.,** 197 Water St., New York.



**WOOD, TABER & MORSE,**

*Eaton, Madison Co., N. Y.,*

MANUFACTURERS OF

PORTABLE AND AGRICULTURAL

**Steam Engines**

Of the HIGHEST STANDARD, in every respect, of materials and workmanship. Were pioneers in the manufacture of

**Practically Portable Steam Engines,**

And with determined policy to build only the BEST MACHINERY from the BEST MATERIALS, and in the BEST MANNER OF CONSTRUCTION, and with continued improvements, have attained the HIGHEST STANDARD in excellence of workmanship, simplicity of design and capacity of power. For a quarter of a century have maintained their manufacture, the

**Standard Portable and Agricultural Engines**

of the world. Descriptive Circulars sent on application. Mention this paper.

**H.W. JOHNS' ASBESTOS**

**Liquid Paints**

are strictly pure linseed oil paints of a higher grade than have ever before been manufactured for structural purposes. They are sold by U. S. Standard gallon measure, and although they command a higher price than any other paints, a saving of 25 to 33 per cent of customary outlay can be effected by their use, in consequence of their wonderful covering properties and superior durability.

The finest and most extensive structures in this country are painted with these paints, among others the U. S. Capitol at Washington, the Metropolitan Railroad of New York, the Oriental Hotel, Manhattan Beach, as well as thousands of the better classes of dwellings everywhere.

Our new Pamphlet "Structural Decoration," with illustrations of elegant dwellings, and other extensive structures decorated with these paints, describing colors and trimmings used, with samples of thirty-two newest shades for dwellings sent free by mail.

We also manufacture in seven colors

**Roof, Railroad and Sea-side Paints,**

also adapted for Barns, Fences, and rough wood-work. Samples will be sent free by mail.

☞ **Be Sure and get the GENUINE, which are manufactured only by**

**H. W. JOHNS M'F'G CO.,**

**87 MAIDEN LANE, NEW YORK.**

*Sole Manufacturers of H. W. JOHNS' Genuine Asbestos Roofing, Boiler Covering, Mill Boards, Steam Packing, Sheathing, Fire-Proof Coatings, Cements, etc.*

☞ *Illustrated Catalogues and Price Lists free by mail.*

We have already given a favorable report upon these paints, and a year's additional wear confirms the opinion formerly expressed. To meet the demand caused by new styles in decoration, the H. W. Johns Co. have brought out a variety of "fashionable" shades which will allow every style of outside and inside decoration to be done with these, that is possible with common paints.—*American Agriculturist*, April, 1881.

WELLS, RICHARDSON & CO'S

**IMPROVED BUTTER COLOR**

**A NEW DISCOVERY.**

☞For several years we have furnished the Dairymen of America with an excellent artificial color for butter; so meritorious that it met with great success everywhere receiving the highest and only prizes at both International Dairy Fairs.

☞But by patient and scientific chemical research we have improved in several points, and now offer this new color *as the best in the world.*

**It Will Not Color the Buttermilk. It Will Not Turn Rancid. It is the Strongest, Brightest and Cheapest Color Made.**

☞And, while prepared in oil, is so compounded that it is impossible for it to become rancid.

☞**BEWARE** of all imitations, and of all other oil colors, for they are liable to become rancid and spoil the butter.

☞If you cannot get the "improved" write us to know where and how to get it without extra expense. (45)

**WELLS, RICHARDSON & CO., Burlington, Vt.**

**COLUMBIA**

**BICYCLE.**

The Bicycle, as a permanent, practical road-vehicle, is an acknowledged fact, and the thousands in daily use are constantly increasing in numbers. It combines speed and endurance that no horse can equal, and for pleasure or health is far superior to any other out-door sport. The art of riding is easily acquired, and the exercise is recommended by the medical profession as a means of renewing health and strength, as it brings into action almost every muscle of the body. Send 3c. stamp for 24-page illustrated catalogue, containing price-lists and full information.

**THE POPE M'F'G CO., No. 597 Washington St., Boston, Mass.**

# THE MONSTER POTATO
## QUEEN OF THE VALLEY.

**$30.00 in Premiums for the Three Largest Specimens.**

The LARGEST and one of the MOST PROLIFIC varieties ever cultivated; first offered by us in the spring of 1881. Many specimens were exhibited last fall weighing 2 to 2½ pounds each.

THIRTY DOLLARS in Premiums will be awarded to those who purchase from us, for the heaviest and best formed tubers, delivered at our store, free of expense to us, previous to Oct. 15th, 1882.

$15 for the three heavie-t and best formed specimens; $10 for the next three heaviest and best formed specimens, and $5 for the next three heaviest and best formed specimens.

Price 50 cents per pound; three pounds, $1.25, by mail, post-paid. By express or freight, at expense of purchaser, one peck, $1.25; one bushel, $3.50; barrel, $8.

**STANDARD VARIETIES OF POTATOES AT REDUCED PRICES.**

Having a surplus stock of the following varieties, we offer them at the following REDUCED PRICES:

| | Peck. | Bushel. | Barrel. |
|---|---|---|---|
| AMERICAN MAGNUM BONUM | $1.00 | $2.25 | $5.00 |
| EARLY GOODRICH | .75 | 1.75 | 4.00 |
| ADIRONDACK | 1.00 | 2.25 | 5.00 |
| SILVER SKIN | 1.00 | 2.25 | 5.00 |
| BLISS' IMPROVED PEACHBLOW | 1.00 | 2.25 | 5.00 |
| ST. PATRICK | 1.00 | 2.25 | 5.00 |
| EARLY OHIO | 1.00 | 2.00 | 4.50 |
| CLIMAX | .75 | 1.75 | 4.00 |
| MATCHLESS | 1.00 | 2.25 | 5.00 |
| MANHATTAN | 1.00 | 2.25 | 5.00 |
| PRIDE OF AMERICA | 1.00 | 2.25 | 5.00 |
| BLISS' TRIUMPH | 1.00 | 2.25 | 5.00 |

For a full description of each variety, send for our POTATO CATALOGUE, which contains much useful matter upon their cultivation. Mailed FREE to all applicants.

**B. K. BLISS & SONS,**
**34 Barclay St., New York.**

---

**ONE MILLION**
## SWEET POTATO PLANTS.

Both Yellow Nansemond and Jersey Red, fine, strong, healthy plants, neatly packed in bundles of 100 each and sent safely by express to all parts of the country, at the special low price $2 per 1,000; 10,000 or more at $1.50 per 1,000. Orders by mail or telegram will receive prompt attention. Address, W. ATLEE BURPEE & CO., Philadelphia, Pa.

---

## JUNE BUDDING.

I am now prepared to bud special varieties of Peaches, Apricots, Nectarines, and Plums in lots of 1,000 to 500,000. Trees to be delivered in fall of 1882 or spring of 1883. Would like orders in by May 20th. I stop June budding by June 15th. I am then ready to execute large orders in fall budding for parties wanting special varieties for any location. Correspondence solicited. Catalogus gratis.

GREAT NORTHERN & SOUTHERN NURSERIES,
**RANDOLPH PETERS, Wilmington, Delaware.**

---

## CABBAGE PLANTS

30c. per 100. (50c. by mail.) $2.00 per 1,000. $15.00 for 10,000.

**CELERY PLANTS** (In July). 40c. per 100. (60c. by mail.) $3.00 per 1,000.
Circular of instructions free.

**GEO. S. WALES, Rochester, New York.**

---

## Rumson Nurseries.

New descriptive and instructive Catalogue of **Fruit and Ornamental Trees, etc.,** now ready. Will be sent Free to all applicants, and to those who have been purchasers within the last three years.

**Large Stock of Peach and Apple Trees.**
**B. B. HANCE, Agent, Red Bank, N. J.**

---

# Strawberries.

Newest and Best Varieties.

**POT-GROWN** and if planted in July and August, will give a fine crop next June. **Bidwell**—the finest strawberry in the world. **Seneca Queen, Manchester, Jersey Queen,** and other choice novelties, specialties, and with them are combined the most liberal offers ever made to the public. Send stamp for Descriptive Catalogue. *Address,*

Cornwall-on Hudson, N. Y. **E. P. ROE.**

---

## STRAWBERRY

**PLANTS GROWN IN POTS.**

See my circular. Ready soon. Send for it **NOW.**

**GEO. S. WALES, Rochester, New York.**

---

# SEEDS!

FARMERS GARDENERS NURSERYMEN

It pays to have good tools and seeds.
It pays to buy of a reliable house.
It will pay you to send for our Illustrated Catalogue.

# IMPLEMENTS

Philadelphia Lawn Mower, Cahoon Broadcast Seed Sower, Matthews' Seed Drills, and other first-class goods. *Everything* for the Lawn, Garden, Greenhouse or Nursery.

WE ARE THE SOLE WESTERN AGENTS.

We WARRANT everything as represented.

## HIRAM SIBLEY & CO.

**SEEDS AND IMPLEMENTS,**
Fully illustrated Catalogue sent free.
CHICAGO, ILL. Wholesale and Retail. ROCHESTER, N.Y.

---

## John Saul's Catalogue of New, Rare and Beautiful Plants for 1882.

Will be ready in February, with a colored plate. It is full in really good and beautiful Plants, New Dracænas, New Crotons, New Roses, New Pelargoniums, &c., with a rich collection of Fine Foliage and other Plants, well grown and at low prices; Free to all my customers, to others 10 cts., or a Plain copy free.

Catalogues of Roses, Seeds, Fruit trees, Orchids, &c., free.

**JOHN SAUL, Washington, D. C.**

---

BEST & CHEAPEST BERRY BOX AND CRATE IN THE WORLD
MANUFACTURED AT
THE MICHIGAN BASKET FACTORY OF
A. W. WELLS & CO.
ST. JOSEPH, MICH.
SEND FOR ILLUSTRATED PRICE LIST.

---

**STRAWBERRY HULLER.** By mail, 10 cts. each; 3 for 25 cts.
A. S. BUNKER, Lawrence, Mass.

---

**SEND** for new varieties of Potatoes and price list of Vegetable Plants, to S. RUPERT, Canton, Stark Co., O.

---

**WE GUARANTEE** that every one who plants Seeds or cultivates the soil shall be interested in our **NEW CATALOGUE of the PLANET Jr. FARM and GARDEN IMPLEMENTS.** It is a beautiful descriptive work of sixteen pages, **FREE TO ALL.** Send us your own and neighbors' names; and we will **ALSO GUARANTEE** that any tool you may select shall be first-class in construction and finish, and exactly as represented. Then why not send now? **S. L. ALLEN & CO.** 127 & 129 Catharine St., Philadelphia

---

# THE UNITED STATES MAIL

LANDRETH'S GARDEN SEEDS

BRINGS A **SEED STORE** TO EVERY MAN'S DOOR

**It is manifest that from GOOD SEEDS ONLY can Good Vegetables be obtained The character of LANDRETH'S SEEDS has been substantiated** *beyond all question.* **They are the STANDARD for Quality. Over 1500 acres in Garden Seed Crops under our own cultivation. Ask your Storekeeper for them** *in original sealed packages,* **or drop us a postal card for prices and Catalogue. Address**

Founded 1784. **DAVID LANDRETH & SONS, 21 and 23 S. Sixth Street, Philadelphia.**

---

Potato Bug Poison. **LONDON PURPLE** Potato Bug Poison.

TRADE MARK.

☞ If nearest dealer has not got it, write to **HEMINGWAY'S LONDON PURPLE CO. (Limited,) P. O. Box 990, No. 90 Water Street, New York,** who will send prices and testimonials.

---

READY JUNE 15.

# 5 Million
## CELERY,
**CABBAGE & CAULIFLOWER**
## PLANTS

All of our own raising, in splendid condition, and at very low rates. Price List, including *Instructions for Culture,* and list of *Seasonable Seeds,* sent free.

**PETER HENDERSON & CO.**
*35 Cortlandt St., New York.*

---

**THE DINGEE & CONARD CO'S**
**BEAUTIFUL EVER-BLOOMING**
# ROSES

The **only** establishment **making a SPECIAL BUSINESS of ROSES. 60 LARGE HOUSES for ROSES alone.** We **GIVE AWAY,** in **Premiums** and **Extras,** more **ROSES** than most establishments grow. Strong Pot Plants suitable for immediate bloom delivered safely, postpaid, to any post-office. 5 splendid varieties, **your choice,** all labeled, for **$1; 12 for $2; 19 for $3; 26 for $4; 35 for $5; 75 for $10; 100 for $13.** Our **NEW GUIDE,** *a complete Treatise on the Rose,* 70 pp, *elegantly illustrated, free to all.*

**THE DINGEE & CONARD CO.**
Rose Growers, West Grove, Chester Co., Pa.

---

GRAPE. Origin, Vermt. **Early** as Hartford. Size and color of Catawba. **Good** as Ions. **Keeps** until April. **Dries** into Raisons. **Champion Quince,** hardy, productive, *large, good keeper.* Address F. L. PERRY, Canandalgua, N. Y., for Illustrated Circular, Price of Trees, &c.

---

## Best Market Pear.

**6,920** Bushels of them and other Fruits and Berries, grown and **marketed fresh in Season 1881.** New Catalogue contains lists of best sorts at lowest rates. Sent free.

**J. S. COLLINS,**
**Moorestown, N. J.**

---

# TOOLS FOR GARDENERS, FLORISTS, FARMERS & NURSERYMEN.

**J. C. VAUGHAN** 42 LA SALLE ST. **CHICAGO.**

---

## THE PEACH TREE

A 32-page pamphlet descriptive of treatment remarkably successful in New England and localities afflicted with the yellows; by mail 50c. Sold only by the author, R. H. FLETCHER, Nurseryman, Ayer, Mass.

---

## WANTED—GROUND MOSS IN QUANTITY.

Must be clean, porous, dry, and pliable. (*Hypnum Schreberi* preferred.) Send sample and price, freight added, to D. F. M. Co., P. O. Box 2345, New York.

---

## INSECTS ON PLANTS!

Removed by using our **FUMIGATING CONES.**

Fatal to insects. Harmless to plants. *Convenient,* safe, cheap, and sure. Instantly ignite with match, and slowly smoulder. Valuable for Rose Bushes, and all plants in Garden or House. 25 cents per dozen, by mail.

**T. T. SOUTHWICK & CO.,**
**Rochester, N. Y.**

---

# CABBAGE PLANTS.

I shall offer in months of June and July, an unusually large quantity of finely rooted plants of following varieties of Cabbage: Premium Flat Dutch, Fotler's Drumhead, Large Late Flat Dutch, Winningstadt. We aim to send out only such plants as are large enough to plant satisfactorily. Per 1,000, $2.00; in lots of 5,000 or 10,000, $1.40 per 1,000. SPECIAL RATES FOR LARGE LOTS. P. O. Orders payable at Plymouth, Pa.

Address, **M. GARRAHAN,**
**Kingston, Luzerne Co., Pa.**

---

**1,000,000**

Drumhead Savoy, Red Dutch and Late Drumhead Cabbage Plants; also Blount's Prolific and Chester Mammoth Seed Corn, $1 per ½-bushel. $1.50 per bushel. Address,

**P. D. Barnhart,** Banksville, Allegheny Co., Pa.

---

**CABBAGE, CAULIFLOWER AND CELERY PLANTS BY THE MILLION.**—Fresh from the farm. Prices low. *Send for Circular.* Address, JOSEPH HARRIS, Moreton Farm, Rochester, N. Y.

---

**PHOTOGRAPHIC OUTFITS for Amateurs,** with full instructions, **$10** up.
**R. & J. BECK,** Philadelphia, Pa. *Send for catalogue.*

**For Washing Windows, Carriages, etc., Protects Buildings from Fire and Trees, Vines, etc., from Insects, Potato Bugs, and Canker Worms.** Valuable to Horse Owners. Can be used in any Position. Send for large Illustrated Circular.

**J. A. WHITMAN,**
Patentee and Manufacturer,
Providence, R. I.

**"VICTOR" One-Horse Grain Drills.**

(3 and 5-Hoed), for sowing *Wheat* between *Standing Corn*, or *Wheat, Rye, Barley, Oats, Rice*, etc., in fallow ground. Can be adjusted also to drill *Corn* for *ensilage* purposes. (Send for circulars). Manufactured by

**EWALD OVER, Indianapolis, Ind.**

**REAPERS BRADLEY'S MOWERS AND HAY RAKES**

SEND FOR ILLUSTRATED CATALOGUE.

AGTS WANTED.

BRADLEY & COMPANY.
SYRACUSE, N. Y.

**Harrison's STANDARD GRINDING MILLS!**

**For STEAM, WATER, WIND, HORSE, or HAND POWER.**
**Possessing great capacity and durability. Every Mill warranted to do just what we claim for it.**

Send for new Illustrated Catalogue. Address

ESTATE OF
**EDW. HARRISON,**
**New Haven, Conn.**

**Carpenter Saws**

Or any other kind, you can file **yourself** with our **New Machine** so that it will cut **Better** than **Ever.** The teeth will all remain of equal size and shape. **Sent free on Receipt of $2.50** to any part of the United States. Illustrated Circulars **free.** Address

**E. ROTH & BRO., New Oxford, Pa.**

**GRIND YOUR OWN BONE MEAL & Oyster Shells** in the (F. Wilson's Pat.) $5 Hand Mill. We also make a Mill that will grind unhulled cotton seed, Prices $15 and $35. A sample of cotton seed or bone ground on these mills, sent on receipt of 5 three-cent Stamps. Address

**WILSON BROS., Easton, Pa.**

**STOCKBRIDGE MANURES**

**CAPITAL OF COMPANY:**
**$600.000.**

**PRODUCT:**

| | |
|---|---|
| 1876 - - - - | 1,000 Tons |
| 1881 - - - - | 21,850 " |

Our Fertilizers must be giving general satisfaction, or else there could not have been so large an increase in so short a time. They not only analyze well, but they give good results in the field, which are more important. We also make it a point never to misrepresent other manufacturers to increase our own reputation. Each Fertilizer must stand on its own merits, and not upon what this or that man says of it.

**PAMPHLET 1882,**
*Mailed Free.*

**BOWKER FERTILIZER CO.**
**BOSTON & NEW YORK.**

**NOYES' HAYING TOOLS,**
FOR STACKING OUT IN FIELDS OR MOWING AWAY IN BARNS.

Save Labor and money.
Are simple, durable and cost but little.
No trouble in getting over high beams or to the end of deep bays.
Hundreds are now in use.

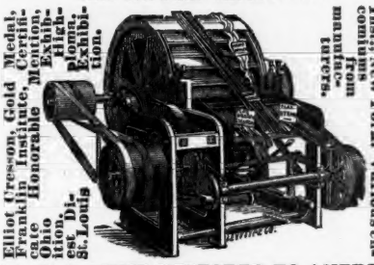
Anti-friction Hay Carrier. Grapple Fork.
Wood Pulleys, Floor Hooks, etc.
Send for circular "A" and designs for tracking barns to
**U. S. WIND ENGINE & PUMP Co.,**
**Batavia, Kane Co., Illinois.**

**$1000 REWARD**
*for any machine hulling as much clover seed in 1 day as the*
**VICTOR**
**Double Huller Clover Machine**
can.

It beats all other Hullers, having hulled
**150 Bushels in ONE DAY!**
**511 Victors** sold in 1881 and the demand could not be supplied.

Circular confirming this mailed **free.** Send for it.
**NEWARK MACHINE COMPANY,** Newark, Ohio.
Owners of Patents and the only Manufacturers in the world.

**AMERICAN VEGETABLE FIBRE CO.**
**IMPROVED MACHINE.**



Elliot Cresson, Gold Medal, Franklin Institute, Honorable mention, Paris Exhibition, 1867. Silver Medal, Penn. State Fair, Medal of Progress, Am. Inst., New York. Various contains from manufactures.

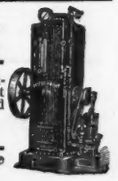
**FLAX & HEMP RESTORED TO AMERICA.**

Great Impediment Removed from Flax and Hemp in the United States, by the Machine of the American Vegetable Fibre Co. Each of the Awards above named was accompanied by the warmest approval of the Judges examining the Invention. The speed of its action and the completeness of its work, surprises all witnessers. The dependence on coarse hand labor, which destroyed our trade for nearly 50 years, is now removed by the substitution of this most ingenious Machine, which will fill the dreary gap between the cultivation and manufacture of these and similar Fibres, and thus restore to us the long lost "Golden Fleece." Illustrated Pamphlets, giving full particulars, sent by mail on application to **American Vegetable Fibre Co.**

**JOS. F. DUNTON, Manager,**
**213 South Front St., Phila., Pa.**

**SHELL LIME FOR AGRICULTURAL PURPOSES,** in Bags at **$5.00** a ton, on cars or vessel.
THOS. H. BOCK, Crisfield, Maryland.

**KRIEBEL'S**
**Vibrating-Valve**
**STEAM ENGINES.**



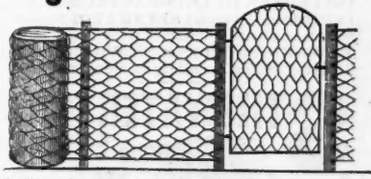
One-third less Machinery than others. Best Engine for farm and dairy purposes.
Address,
**West Point Engine and Machine Co.,**
**West Point, Pa.**

**FURST & BRADLEY SULKY PLOW.**
**FURST & BRADLEY MFG CO.**
CHICAGO ILL.
The ONLY sulky
Having friction Horse Lift Main lever rack attaches to plow beam leaving pole free. SEND FOR PAMPHLET.

**WELL BORING,** ARTESIAN WELL DRILLING & MINERAL PROSPECTING MACHINERY

and how to use, is fully illustrated, explained and highly recommended in "**American Agriculturist,**" Nov. No., 1879, page 465. Send for it. Portable, low priced, worked by man, horse or steam power. Needed by farmers in every county. Good business for Winter or Summer and very profitable. Makes wells in earth or rock anywhere. We want the names of men that need wells. Send stamp for illustrated price list and terms to Agents.
**Pierce Well Excavator Co., 29 Rose Street, New York, U. S. A.**

**Sedgwick Steel Wire Fence.**



Is the only general purpose wire fence in use, being a **Strong Net-Work without Barbs.** It will turn dogs, pigs, sheep, and poultry, as well as the most vicious stock, without injury to either fence or stock. It is just the fence for farms, gardens, stock ranges and railroads, and very neat for lawns, parks, school lots and cemeteries. Covered with rust-proof paint (or galvanized) it will last a lifetime. It is **Superior to Boards or Barbed Wire** in every respect. We ask for it a fair trial, knowing it will wear itself into favor. The **Sedgwick Gates,** made of wrought-iron pipe and steel wire, **defy all competition** in neatness, strength and durability. We also make the best and cheapest **All Iron Automatic or Self-Opening Gate.** Also cheapest and neatest **All Iron and Steel Wire Ornamental Fence.** For Prices and Particulars ask Hardware Dealers or address the Manufacturers,

**SEDGWICK BROS.,**
Mention this paper. **Richmond, Ind.**

CENTENNIAL AND GRAND PARIS WORLDS FAIR PRIZES AND ALL THE U.S. STATE FAIR PREMIUMS IN 1877 & 1878.
PRICE, $350
PUTS FROM 10 TO 12 TONS IN A CAR.
REQUIRES LESS HELP.
PRICE, $175
AND BALES TWICE AS FAST AS ANY OTHER PRESS.
THE BALE IS PATENTED AND WILL SELL FOR MORE MONEY
ADDRESS, FOR CIRCULAR,
P. K. DEDERICK & CO. ALBANY, N.Y.

**THRESHERS** *The Best is the cheapest.* Illustrated price list free. **THE AULTMAN & TAYLOR CO., Mansfield, O.**

**Cast-Iron Field Rollers**

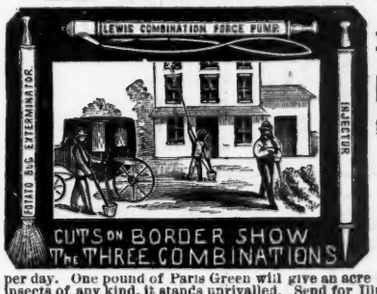
**IN TWO SECTIONS**
30 inches in diameter.
No. 1 size, 9 ft. long over all; weight 1300 lbs.
No. 2 size, 7 feet long over all; weight 1100 lbs.
No farmer can **afford** to do without one. In **turning,** one section rolls forward, the other backward. **No tearing up of the soil.** Address,

**DICKEY & PEASE,** Manufacturers, **Racine, Wis.**

**EVAPORATING FRUIT.**
**SENT FREE** Treatise on improved methods. Tables, yields, prices, profits, and general statistics.
AMERICAN M'F'G CO., Waynesboro, Pa.

**LEWIS'S COMBINATION FORCE PUMP**

**Makes Three Machines. Is the Best Pump in the World. Made of Brass Throughout.**




**ANOTHER NEW IMPROVEMENT IS**
**LEWIS'S PATENT SPRAY ATTACHMENT,**
can change from solid stream to spray instantly.

**DON'T FAIL TO READ THIS SPLENDID OFFER.**

We will send a sample Pump, express paid, to any express station in the U. S. or Canadas for $5.50. Regular retail price, $6.00. Weight, 4½ lbs. Length, 32 inches.
We also manufacture, separate, the

Price—post-paid—Zinc, $1.25; Polished Brass, $1.75.

**Over 15,000 Sold in Seven Months.**

We challenge the world for its equal. Can do from 3 to 5 acres per day. One pound of Paris Green will give an acre three separate dressings. For *syringing fruit trees* infected with insects of any kind, it stands unrivalled. Send for Illustrated Catalogue, Price List, and Terms to Agents, etc. We give the names and addresses of many of our agents who make from $10 to $30 in a single day; also a long list of our customers, each of whom have bought from $50 to $2,000 worth of these goods in from 1 to 3 weeks' time. You can make from $10 to $20 per day. Agents wanted everywhere.

**LEWIS MANUFACTURING WORKS, Catskill, N. Y.**

# MINNESOTA CHIEF

Wonderfully simple and perfect in its threshing and separating qualities. Saves **ALL** the Grain and **cleans it ready for Market.** Runs easily, constructed durably, finished beautifully, least expensive, and most economical and SATISFACTORY MACHINE NOW **BEST** MADE. It will handle wet grain as well as dry. It has no equal in threshing **THRESHER** flax and timothy; cleans **IN USE** both as well as wheat; requires no change except the sieve. Has more square feet of separating and cleaning surface than any other machine; can not be overloaded. It is both over and under blast. Our **CLOVER HULLING ATTACHMENT** (new and very desirable.) **SEPARATORS** of the various sizes fitted for Steam or Horse-Power. The **ELWARD,** the **PITTS** and the **WOODBURY Horse-Powers,** as made by us, are unexcelled.

## STILLWATER No. 10 ENGINE

Cylinder 7x12
For WOOD or COAL

We also make the **STILLWATER No. 12** and **MINNESOTA GIANT FARM ENGINES,** each having return-flue, and fitted for burning straw, wood or coal. These Engines are made and finished in the *most perfect manner.* **TRACTION ATTACHMENTS** can be furnished with any of them. ☞ *For Price-List and Circulars,* address

**SEYMOUR, SABIN & CO.**
**Manufacturers,** Stillwater, Minn.

---

SPRING STEEL TOOTH

# HORSE RAKES.

**THE CHAMPIONS OF THE WORLD.**
**Highest Award The Medal of Honor,**
at the
**Centennial and Vienna Exhibitions.**

No Cogs or Ratchets, Easiest Hand or Horse Dumping. Purchasers prefer them to all others for Durability and Efficiency. Fully guaranteed; so no risk is incurred in ordering from us. Responsible Agents wanted where we have none.

**Send Stamp for Catalogues of RAKES, THRESHING MACHINES, &c.**
**WHEELER & MELICK CO.,**
**ALBANY, N. Y.**

---

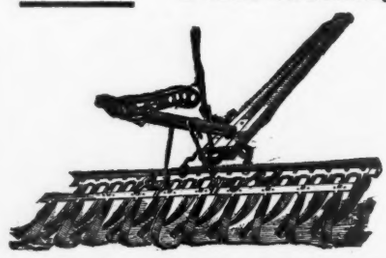
THE CELEBRATED
**A. P. DICKEY FANNING MILLS!**

**Have no equal.** They obtained the highest award at the 'Centennial' in 1876, and at Paris in 1878. These mills are made in nine sizes, for Farm and Ware-house use (hand or power). Capacity from 50 to 500 bushels per hour. They clean and separate all kinds of Grain and Seed for market; also **grade** them for **seeding.** They separate Oats and foul seed, such as Cockle, Smut, &c., from Wheat, Barley or Rye; and are specially adapted for cleaning, separating and grading Timothy, Clover, Red-Top, Flax, etc., and clean and **separate** three kinds of Beans at **one operation.** We also make the

**"Peerless Corn Sheller." Cast Iron Field Rollers,** &c.
Address, **DICKEY & PEASE,** Manufacturers,
**RACINE, Wisconsin.**

---

# "ACME" Pulverizing



## HARROW, CLOD CRUSHER AND LEVELER.

The **"ACME"** subjects the soil to the action of a **Crusher** and **Leveler,** and at the same time to the **Cutting, Lifting, Turning** process of double rows of **Steel Coulters,** the peculiar shape and arrangement of which gives **immense cutting power.** The **entire absence of Spikes or Spring Teeth** avoids pulling up and scattering of rubbish. It is **especially adapted** to inverted sod, hard clay and "slough land," where other Harrows utterly fail, and also works perfectly on light soil. Sent on trial to responsible farmers anywhere in the United States. Agents wanted. Send for circular.

**NASH & BROTHER, Sole Manufacturers,**
HARRISBURG, Penn., and 22 COLLEGE PLACE, New York City.

---

Received Medal AND HIGHEST AWARD

OF MERIT AT CENTENNIAL.

*Send for Catalogue.*

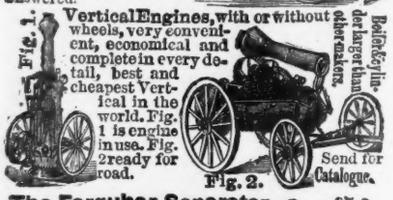
**SAWMILLS**

**STEAM ENGINES,**
**A. B. FARQUHAR, York, Pa.,**

Cheapest and best for all purposes—simple, strong, and durable. Also Horse Powers and Gin Gear.

SAW, GRIST AND COB MILLS, GINS, PRESSES AND MACHINERY generally. Inquiries promptly answered.

A specialty.




**Vertical Engines,** with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world. Fig. 1 is engine in use. Fig. 2 ready for road. Boilers 6 to 10 per cent larger than other makers.

Send for Catalogue.

**The Farquhar Separator**
(Warranted)

Penna. Agricultural Works, York, Pa. Lightest draft, most durable, simplest, most economical and perfect in use. Wastes no grain, cleans it ready for market.

Steam Engines, Horse Powers and Threshers of all Kinds. Also, Ploughs, Cultivators, &c., &c.

AND HIGHEST PRIZE AWARDED SEPARATORS,

THE SILVER MEDAL AT Paris Exposition.

Send for Illustrated Catalogue. *Address A. B. Farquhar, York, Pa.*

---

THE LARGEST
**MACHINERY DEPOT**
IN AMERICA.
STANDARD MACHINERY FOR ALL PURPOSES.
**H. B. SMITH MACHINE CO.**
ESTAB. 1849. 925 MARKET ST. PHILADELPHIA.

---

## Bookwalter Engine.

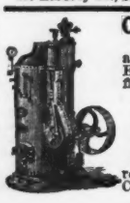
Especially adapted for Dairies, Creameries, and Farm purposes. Can be used for years without any repairs. Over 2,200 in actual use. Not one ever exploded. Can be run by any one of ordinary intelligence. Every Engine complete, ready to use as soon as received. No Engine built so good and so low in price.

| | | |
|---|---|---|
| 3 | Horse-Power.... | $240.00 |
| 4½ | " " .... | 280.00 |
| 6½ | " " .... | 355.00 |
| 8½ | " " .... | 440.00 |

Illustrated Catalogues Free.

**JAMES LEFFEL & CO.,**
110 Liberty St., New York City, or **Springfield, Ohio.**

---



## COMMON SENSE ENGINES.

Simple, durable, of the best workmanship and material. Solid Wrought Iron Boilers. Engine complete on board cars at Springfield, Ohio, at following prices:

| | | |
|---|---|---|
| 3 | Horse Power..... | $275 |
| 5 | " " ..... | 300 |
| 7 | " " ..... | 375 |
| 10 | " " ..... | 500 |

15, 20 and 25 H. P. at very low prices.

These Engines fully guaranteed in every respect. Address COMMON SENSE ENGINE Co., Springfield, Ohio.

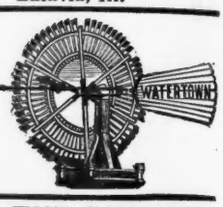
---

HALLADAY
**STANDARD WIND MILL,**
VICTORIOUS AT
**Phila., 1876—Paris, 1878**

25 Years in Use.
GUARANTEED SUPERIOR
To any other Windmill Made.
**17 Sizes—1 Man to 45 Horse Power.**
*Adopted by the leading R. R. Co.'s and by the U. S. Government at Forts and Garrisons.*
**$3,500,000 worth now in Use.**
Send for Catalogue "A."
**U. S. Wind Engine & Pump Co.,**
**Batavia, Ill.**

---

THE
**Watertown WINDMILL**




THE BEST IN USE.
Write for descriptive catalogue A
**H. H. BABCOCK & SONS,**
Watertown, N. Y.

---

**THE PERKINS'**
# Wind Mill

is the Strongest and Best Self-Regulating Wind Mill made. Full instructions for erecting sent with the first mill. **All Wind Mills warranted.** For Circulars and Prices address
**The Perkins' Wind Mill & Ax Co.,**
Agents wanted. **Mishawaka, Ind.**

---

# THE CHAMPION
WIND MILL POWER
**The Best in the World.**

It is perfectly self-regulating, and presents no unnecessary surface to the wind. Pronounced by millwrights and mechanics to be superior to all other mills made. Do not buy until you have investigated the Champion. All information regarding the mill free.
**POWELL & DOUGLAS, Waukegan, Ill.**

---

## OLD RELIABLE STOVER.

We manufacture the Old Reliable Stover Wind Mill, for pumping and grinding purposes. Also O. E. Winger's novel and improved double feed grinders, operated by pumping Wind Mills, and by any other power. Also geared Wind Mills for running Machinery. Write for catalogue and agencies.
E. B. WINGER, Freeport, Ill., U.S. A.

---

HEEBNER'S
## Level Tread Horse Power
WITH SPEED REGULATOR.

**Heebner's Improved Little Giant Threshing Machine.**
"Union" Feed Cutter, Circular and Drag Saw Machine, etc., Send for Catalogue. **Heebner & Sons,** Lansdale, Mont. Co., Pa.

---

# THE PEERLESS

1854. 1882.

**Thresher and Cleaner—Clover Huller and Cleaner—Straw-Preserving Rye Threshers—Railway and Lever Powers—The Howland Feed Mill—The Aspinwall Potato Planter, and Digger.** Our machines are guaranteed to work well, and have received the highest testimonials and cannot be excelled.
**B. GILL & SON,**
Trenton Agricultural Works, Trenton, N. J

---

## Hege's Improved Circular Saw Mills.

Send for CIRCULARS.

With universal Log Beam, Rectilinear, simultaneous Set works, and Double Eccentric Friction Feed.

Unexcelled for Accuracy & Durability. Prices low, workmanship first-class.

Manufactured by **Salem Iron Works, Salem, N. C.**

EASY TO WORK, Simple in Construction, Beautiful in Appearance, Noiseless in Operation, Strong and Durable.

Send to MAST, FOOS & CO., FOR CIRCULARS AND PRICES.

AHEAD OF ALL COMPETITION.

1882.

TWELVE SIZES FOR HAND USE.
Weighing from 21 to 51 lbs.
THREE SIZES FOR HORSE POWER.

GRAHAM, EMLEN & PASSMORE,
Patentees and Manufacturers,
631 Market St., Philadelphia, Pa.

We are general agents, and sell the above at manufacturer's prices, at Rochester, N. Y., or Chicago, Ill. Send for Catalogue and prices.
HIRAM SIBLEY & CO.,
Chicago, Ill. Rochester, N. Y.

Gardner's Railway Pitching Apparatus.

Consisting of Grappling Fork, Carrier, Pulleys, etc. This Fork, Car, etc., has been sold throughout the U. S. and Canada with the greatest success. It has won its way amid the greatest competition of Forks and Carriers, and is without doubt the best Hay and Grain Unloader made. Every farmer should send for a circular
now. E. V. R. GARDNER & Co., Westtown, Orange Co., N. Y.

1882.

Pennsylvania Lawn Mower.

Surpassing all others and pronounced the best, lightest, runs more easily, cuts longer grass, is more durable, requires less repair, cuts grass more smoothly, is less liable to obstruction, is of handsome appearance.

Penn. State Agricultural Society says: "It will, we believe, wear longer, do the work better, with less labor than any other Mower. One of the peculiarities is that it will cut higher grass than any other Mower." The Quaker City 10-inch Mower for small Lawns and Plots is unequalled.

*Send for handsomely Illustrated Catalogue. Every machine warranted.* Address,
LLOYD, SUPPLEE & WALTON, Philadelphia, Pa.

Agents Wanted

CHURCH'S
Hay Elevator & Carrier.

BEST in use for Mowing Away Hay in barns or stacking, being adapted for either purpose. Has no equal for Simplicity, Durability and good work. The track is self adjusting and is easily put up. Send for descriptive circular and special terms for introduction to E. L. CHURCH, Manufacturer, Harvard, McHenry County, Illinois.

THRESHER FOR $175.00.

We offer a first-class thresher and cleaner, 4 to 6 horse-power; that will *Separate* and *Clean Thoroughly*, ready for market, leaving the straw in good condition; with a capacity of 30 to 50 bushels wheat, and a proportionate amount of other grain per hour; for the *unprecedentedly low* sum of $175.00 cash. Send for circular.

BLYMYER MANUFACTURING CO.,
CINCINNATI, O.

DOUBLE HARPOON
HORSE HAY-FORK.
Best in the World.
Descriptive Catalogue sent Free.
PENNOCK MANUFACTURING CO.,
Kennet Square, Chester Co., Pa.

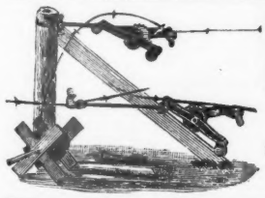
EXCELSIOR
LAWN MOWERS.

HAND MOWERS, Side Wheel and Roller, 10 to 20 Inch Cut.
HORSE MOWERS, 25 to 40 Inch Cut.

Our Mowers are guaranteed to be the best in the Market. Send for Circular and Price List,

CHADBORN & COLDWELL M'F'G CO.,
NEWBURGH, N. Y.
—OR—
ROBERT C. REEVES,
185 & 187 Water St., New York City.
DEALER IN AGRICULTURAL IMPLEMENTS, SEEDS and FERTILIZERS.

Sold in New York City and to Country Trade by
H. B. GRIFFING, 70 Cortlandt St., New York City.

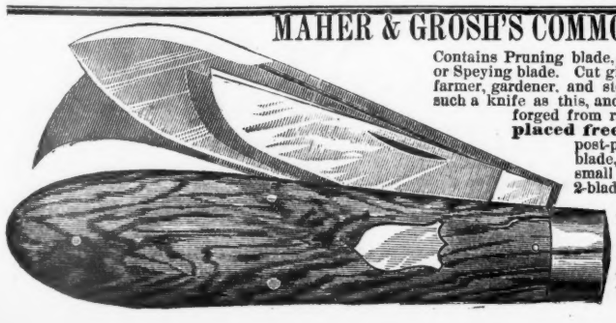


SAMSON WIRE STRETCHER.

FARMERS LOOK TO YOUR INTERESTS.

The "Samson" is the best, the simplest and most portable Wire Stretcher in the market. It does the work every time. Every machine guaranteed. Ask your hardware dealer for it. Send for circulars. Manufactured only by
SAMSON NOVELTY WORKS, DEKALB, Illinois.

MAHER & GROSH'S COMMON-SENSE KNIFE



Contains Pruning blade, Jackknife blade, and Budding or Speying blade. Cut gives exact size. Probably every farmer, gardener, and stock-man has often thought of such a knife as this, and here it is. Blades carefully forged from razor steel, file-tested, and replaced free if soft or flawy. Price $1.00, post-paid; or without the budding blade, 75 cents; with just large and small blades, 50 cents; extra strong 2-blade, for hard service, 75 cents; "Our Best" oil-tempered Pruner, $1.00; Budding knife, 65 cents; Pruning Shears, $1.00.

Illustrated List free; also our "How to Use a Razor."

MAHER & GROSH,
Cutlers, TOLEDO, OHIO.

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing desired articles, or those referred to in the "Basket" or elsewhere, can usually be sent post-paid for 15 cts. each, or $1.50 per volume.**

---

**Clubs** can at any time be *increased* by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 5 subscribers and $6, may afterwards send 5 names more and $4, making 10 subscribers for $10.00; and so for any of the other club rates.

---

**Preserve the Census Items.**—The census of 1880 covered a far greater range of subjects than was ever before attempted in this country, and unusual care was taken to insure the greatest possible accuracy. It will require years of work yet to compile and arrange the statistics and get them into a complete condition to present to the public, and they will then be too bulky to be accessible to the people at large. Members of Congress have direct access to the census bureau, and for the various discussions of the tariff and other topics they bring in many illustrations from the unpublished statistics. Having these discussions in full, we are able to prepare interesting and useful tables for the *American Agriculturist*, in a condensed and intelligible form. One or more of these is given in each paper, and our readers will do well to carefully preserve all the numbers of this volume, and back to December. For example, in *December* is given the range and changes in prices of leading articles for four years. In *January* the notes on Wood as Fuel. In *February*, the entire population figures for States, Territories, etc.; and a live stock market summary for 1881. In *March*, the Areas of land and water in each State and Territory, and Kansas Agricultural Statistics. In *April*, some school statistics, and the world's population. In *May*, the oat crop, acreage, yield, etc., for the whole country and each State and Territory; the population of 100 cities; some statistics of Italy and Mexico, and of U. S. school children, etc. Other condensed statements will be found in this and future numbers.

---

**It is well** to always run one's eye over the advertising pages of this Journal, and see what is offered, by whom, etc., as a source of information. There are usually *new* and valuable implements, and other things worthy of attention, while no vile or quack medical nostrums are present to disgust the old, or deceive or allure the young. No man is admitted if there is not good reason for believing that he has both the *ability* and *intention* to do what his advertisement promises. The Editors have full veto power over every advertisement offered, and they exclude the advertisements of every party whom they would not themselves patronize, if wanting the articles offered. ☞ When corresponding with any of these advertisers, sending for their circulars, catalogues, etc., it is well to inform them that you are a reader of this Journal. They will know what *you* expect (and what *we* expect) of them in the way of prompt and fair treatment.

---

**Red Flannel.**—"F. S." asks whether scarlet medicated under-clothing is beneficial as a remedy for rheumatism. We do not suppose the color of flannel can have any possible effect. That it can be "medicated" with anything that will not be removed at the first washing is extremely doubtful. Flannel that has been dyed is usually closer in texture than the white, and if there is any difference it is probably due to this.

---

**The American Association of Nurserymen, Florists, and Seedsmen,** will hold its annual meeting this year, June 21st to 24th, at Rochester, N. Y. This is the most easterly point at which this meeting has been held, and as Rochester is an important horticultural center, there will no doubt be a large attendance. The papers read at former meetings have been of value, and the discussions of a practical character and full of interest. Mr. W. C. Barry is the President.

## The Recent Forestry Meeting.

The first step in all great reforms is to convince the public of the existence of the evil to be remedied. For many years those interested in the preservation of our forests, and in forest-tree planting, have been engaged in showing the present rapid destruction of our timber, and in demonstrating that, at the present rate of decrease, we shall be practically treeless at no very distant time. Most effective in showing this, have been the maps issued by the Forestry Department of the Census. A glance at these is more impressive than a volume of description. That the people are in part aroused to the importance of the tree question, is shown by the offering by some of the Western States, of bounties for tree planting, in the abatement of taxes for a given area planted in trees; also in the appointment of "Arbor-Day" as a State holiday, in which the people can have a frolic in planting trees by the road-side and elsewhere. The recent meeting of the Forestry Association, which began at Cincinnati on April 25th, has a special importance, from the fact that, by bringing together men from a large number of States, it indicates united action. Especial interest was given to the meeting by the prominent part taken by the Governor of Ohio, and other State and Municipal officers. There were representatives, including governors and professors in colleges, and others, from Alabama, Kentucky, Iowa, Wisconsin, Michigan, Arkansas, Nebraska, and elsewhere. Especially noticeable was the large attendance from Canada, which seems ready to take a timely warning by our neglect of our forests, and act for the preservation of their own while there is yet time. A number of interesting papers were read, and discussions followed. A paper of special interest was sent by the venerable ex-Governor Horatio Seymour, who, in his retirement from political life, devotes himself to agricultural pursuits.

An interesting part of the proceedings was the planting at 8th Street Park, hereafter to be called Garfield Place, of twelve memorial trees, in honor of the late President. The trees were sent from Mentor by Mrs. Garfield, and the planting was done by young ladies. A permanent organization was perfected, to be known as the "American Forestry Congress." Its most important act was the appointment of a committee to present to Congress the claims of forestry upon national legislation, and to procure the enactment of needed laws.

**The Death of Charles Darwin.**—These words record the loss, at the ripe age of 74, of the greatest naturalist of the age, and one whose labors have been largely for the benefit of farmers and horticulturists. His views have been much discussed by those who knew the least about them, and this pure-minded, reverent naturalist has been most abused by those who have never read his books. As to the conclusions to which he came in following the way in which facts led him, we have nothing to say, and that is a matter of minor importance. As to his facts, these have never been disputed. The great service Darwin has rendered the world, has been in teaching people *how* to see. His methods of investigation, so simple and so thorough, have been of the greatest benefit in every department of scientific research. Whatever may have been his influence upon the thought of his time, he has benefited the workers and investigators of his day to an extent beyond that of any other. That which brings him nearer to our class of readers than anything else, is his work on "Plants and Animals Under Domestication,"—and what a wonderful store-house of facts and references it is! No breeder of animals, and no intelligent grower of plants, can be regarded as thoroughly equipped for his pursuit unless he has this work at hand for reference. Every young gardener should read his work on the "Movements of Climbing Plants," if only to see how the commonest things relating to plants, when properly observed, may become of the greatest interest and value. No horticulturist can afford to be without the information contained in his work on "Cross and Self-fertilization in the Vegetable Kingdom," if he would intelligently work at the production of new varieties. This great observer of facts was most modest in his statement of the conclusions to which he thought these facts pointed, and no man was more free from self-assertion. The writer, in correspondence with him, soon after the appearance of "Animals and Plants Under Domestication," said, with reference to the newly announced view of "Pangenesis," "I have read it, and it almost took away my breath." In his reply, he said: "You say that it almost took away your breath? Well, I do not wonder at it. Still, I am convinced that, perhaps in a modified form, this view, or something like it, will come to be accepted"; showing an absence of egotism characteristic of the man. Darwin did not need Westminster Abbey, but Westminster needed Darwin, and he was buried there by the side of Newton. That wonderful repository of England's precious dust, has an added attraction to every naturalist who visits Europe.

# For JUNE.

## SPECIAL PREMIUMS.

(*N. B.—The following offers will hold good* ONLY *from the reception of this paper, up to July 3d, next*):

Any person sending a subscription to the *American Agriculturist* for one year, at the regular rate ($1.50), will be presented with **any one** of the following, delivered by mail, post-paid, to any part of the United States or Territories (the Pot-grown Plants excepted):

**No. 1.—Any one of the One Hundred Good Books described on pages 124 and 125 of the March number of the** *American Agriculturist.*

**OR,**

**No. 2.—The American Popular Dictionary, described on page 124 of March** *American Agriculturist.*

**OR,**

**No. 3.—24 Bidwell Strawberry Plants, post-paid; OR, 15 Pot-grown Bidwell Strawberry Plants, by express, unpaid, as described in March** *American Agriculturist*, **page 124.**

**OR.**

**No. 4. — The "American Agriculturist MICROSCOPE," described on page 173 of April** *American Agriculturist.*

## The Grain and Produce Speculation.

Contrary to the general expectation, the manipulators of the Breadstuff and Provision Markets are still able to hold up prices, by the sheer force of abundant capital in the hands of a few individuals who work in combination. It now looks as if they may be able to continue to do so for a month or two more, until, their ends being accomplished, they can unload their stocks, partly upon entrapped "bears," and more upon unsuspecting and deluded "lambs." If any unlooked for disaster happens to the maturing crops, the "deals" can perhaps be carried through the season.

While the speculative prices prevent exports, to the detriment of the country at large, and of farmers themselves in the future, as explained in a former number, there is of course a positive demand for food and seed that must be met at any price which those controling the supplies may choose to demand. The rates thus maintained are to the temporary advantage of those producers who have still on hand an uncontracted surplus from last year's crops. But the mass of producers have reaped little advantage, as the manipulators took good care to get in hand, or under contract, a very large part of the crop of 1881, before beginning operations on an extensive scale. On the other hand, the great mass of consumers throughout the entire country are suffering, because of the abnormal high rates, a large percentage of which goes into the pockets of the speculators.

The harvest has commenced at the far South, and is moving northward, with no unfavorable features so far. The present out-look is favorable generally, a few localities excepted, though the cold weather is continuing so late that fears of the results are indulged on the part of some. There is this encouragement to farmers, that if the crops give only an average yield, or less, higher prices will bring the total receipts from the diminished products nearly, if not quite, up to or beyond what would be obtained from a crop largely in excess of the average yield, as that would reduce prices.

# THE END.

## Important Notice.

The offers of the General Premiums for Volume 41 will *terminate* on June 30.

All who have premium lists in progress, will need to complete them and call for the premiums before that date, or they cannot be supplied.

We advise every reader to take advantage of this opportunity to obtain one or more of these articles.

## A Thousand New Lists

can **easily** be made up before the end of June—lists of two, three, four, five, and many more, names of subscribers, old and new—and any corresponding premium article be obtained without price In past years many clubs of 50 to 150 names have been started and made up in May and June.

## SPECIAL.

Two half-yearly subscriptions (July to December, inclusive) may be counted for one whole year, in making up a premium list. Indeed we will be pleased to have such subscriptions, being assured that every one who reads this Journal as it will be during the next six months, will be certain to continue a permanent reader.

Full Descriptive Lists with Illustrations will be forwarded post-paid to any one who has not a copy at hand, on application by postal card or otherwise.

**For Far-Off Subscribers,** those too distant to receive this number before June 10, we will try and provide premiums, if they send forward their lists within 20 days after this June number comes to hand.

**"Consumption."—Important Discoveries.**—It is estimated that one-seventh of all the deaths of the human race are due to tubercular disease, and that one-third of all who die in middle age are carried off from this cause! We never admit advertisements of medicines for "consumption," because we consider all such nostrums valueless, when not injurious. Skilful medical treatment may modify suffering, and sometimes delay the fatality of the disease for years. Consumption has long been classed as one of the human maladies rarely curable, though some expert physicians have recently been successful in this direction, to a limited extent, when the disease has been taken in hand during its earlier stages. But medical investigations are now carried on with greater energy than ever before, and medical science is advancing with wonderful rapidity, as compared with any past period of the world's history. Recent discoveries make it possible to arrest splenic fever, which has been so destructive of cattle and other domestic animals, by inoculation, similar in its action to that of vaccination for small-pox.—And now we have the most interesting and important announcement that Dr. Koch, of Berlin, after a long series of patient investigations and experiments, has discovered the cause of consumption, and the way the disease is disseminated. Prof. Tyndall reports upon this discovery in the "London Times," and is convinced of its reliability. Without going into details, we will explain briefly that it is thought to be proved that tubercles in the lungs of consumptives are due to an animated, minute rod-shaped parasite, that multiplies with great rapidity, and that may be transferred from one person to another by inoculation, and by inhalation. By impregnating these parasites with a special dye, Dr. Koch has been able to detect them, to watch their operations, to transfer them to many animals, to breed them—five successive generations in fifty-four days—and to perform a large number of most remarkable experiments. This discovery promises to be one of the most important of the age, and of far-reaching consequences. If the cause of consumption and its mode of transfer be discovered, its cure, by timely inoculation with cultivated or modified virus, or by other means, will probably quickly follow. The further developments in this direction will be watched with intense interest by the entire medical profession—indeed by the whole human race. And well may it be so, if we can now indulge a hope of successfully combatting a disease that is annually sending to the grave more victims than war and pestilence, and more than any other human ailment; a disease that, as stated above is the direct cause of one-seventh of all human deaths —the slayer of one-third of all who die in middle life.

**The Sugar of the Maple Where Stored.**—"A. J. P." asks: "What part of the tree does the sap, or sugar water come from—the roots or the branches?" In general terms, material for the future growth of the tree is provided during the previous summer, and is stored in the form of starch, or some closely related substance. In spring, when it is necessary to carry this nutriment to the buds, where new growth will take place, the starch is changed into sugar. Starch is not soluble in cold water, and is usually the form in which material for future growth is stored. It is readily converted into sugar, which is very soluble, when it is to be conveyed where it is needed in the growth of the plant, and there converted into the material of which the new stems, leaves, etc, are built up. Sugar does not exist, as such, in the roots and branches of the tree, but in the sap; and when this is intercepted by cutting some of the carrying tubes, it flows out, and the sugar is obtained by boiling—that is, driving off the water by heat.

**Sugar from Sorghum.**—The "National Academy of Sciences" is our most important scientific association, and is, in a sense, an official one, as it bears certain relations to the Government. In view of the increasing importance of Sorghum as a source of sugar, the Academy last year appointed a committee to investigate the matter. Professor Silliman, the chairman, in a letter to Dr. T. G. Richardson, of Louisiana, states that the committee have examined the published, and especially the unpublished, investigations of Dr. Collier, Chemist to the Department of Agriculture, and that he is so far convinced of the importance of Sorghum as a source of sugar, as to advise planting it in those southern localities where the recent floods have destroyed the fields of Sugar Cane. His advice is founded upon results obtained from "Early Amber Cane," while the "Early Orange" seems to be still more promising. One of the most interesting points of this letter is the statement, on the authority of Col. H. B. Richards, of LaGrange, Texas, that the "Orange" cane becomes perennial in Texas, the shoots from last year's stubble having been, on April 8th, far ahead of any cane from seed. Should the Sorghum become really perennial in Texas, Louisiana, etc., it may revolutionize sugar culture in the cane-growing States. The great difficulty in growing Sorghum in the Northern States, is the small size and weakness of the young plants, as they are at first difficult to distinguish from grass. Late sowing, so that the plant will grow rapidly from the start, is for this reason better than too early sowing. The introduction of the "Early Amber" has revived the interest in Sorghum culture; it has, on undoubted authority, yielded from 1,000 to 2,000 lbs. of fair sugar to the acre, with 20 to 25 gallons of syrup, besides an important product of seed. This seems to be the earliest variety, and in a climate similar to that of Washington, matures in 90 days. Can farmers produce their own sugar? is a question that will be asked. As we have formerly suggested, sugar can only be produced by the use of more expensive apparatus than a single farmer would care to purchase, and it requires skilled labor. The proper way, as in the case of cheese factories and creameries, is for farmers to unite, put up and equip a sugar-making establishment. The farmer can readily make a superior syrup from the "Early Amber," vastly better than any ever made from the older sorts of Sorghum. For this he will need a mill and an evaporator. These are made by several establishments which advertise them, and will send circulars that can be compared. One manufactory will answer for several neighbors, and co-operation will be economical.

**A Remarkable Bear.**—The number of odd things that are sent to a New York commission dealer in the course of a year, would make up a curious catalogue. We often find, besides those animals ordinarily regarded as "game," living Alligators, Horned Owls, Opossums, etc., and lately there was the carcass of a fine Brown or Cinnamon Bear hanging at a store. Upon inquiry, we learned that the bear was sent from the mountains of western Pennsylvania. As this bear, formerly considered as a distinct species, but now regarded as only a variety of the common Black Bear, is not known east of the Rocky Mountains, we thought that there must be some mistake about it, and that possibly it had been a tame specimen. Upon further inquiry of the sender, Seeley Bovier, of Bradford Co., Pa., he replied in substance, that the animal was killed by him on the "South Mountain Range," in Lycoming Co. Mr. B., who is an old hunter and trapper, had never seen such an animal before. He states that all last summer the people of that sparsely settled district had been alarmed at a strange animal, which followed men, women and children who were out after dark, and would sometimes come very near them, making a frightful noise. From the occasional glimpses had of the animal, it was decided that it was a panther. Mr. B. is convinced that this bear, which he shot on April 12, was the mysterious animal. He writes that he was the most ferocious of all the bears he ever killed. Feeling sure that the occurrence of a Cinnamon Bear in this locality must be of interest to naturalists, we wrote to Prof. Baird, Secretary of the Smithsonian Institution, the above statement. He at once telegraphed to purchase the animal and forward it to Washington. Prof. B. afterwards wrote that the specimen was a remarkably fine one, and was a welcome addition to their collection, which, full as it is in our native animals, had not before included the rare Cinnamon Bear.

**Covering Land with "Greenbacks."**—Those living on the "boundless prairies," where the government gives a farm to every man or woman who will take it, live on it and work it, and where any amount of land can be bought for a very few shillings or dollars per acre, will open their eyes pretty wide on seeing the price paid the other day for a plot of ground in New York City, on the corner of Fifth Avenue and 54th Street. It is four "city lots" 25 by 100 feet, or just 100 feet square, making 10,000 square feet, which is less than a quarter of an acre—(an acre is 43,560 square feet). Mr. W. H. Vanderbilt bought the plot to build a couple of houses on it for two married daughters, and the cash paid for this quarter acre was $396,000, or at the rate of over a million and a half dollars per acre ($1,584,000 per acre).—The ordinary greenback bills, somewhat closely trimmed, are 7¼ inches long, and 3 1/15 inches wide, having 22 square inches of surface; six and a half bills lack but an inch of covering or "carpeting" a square foot. A little figuring will show that the price paid for Mr. V.'s plot would just about cover it all over with one-dollar bills, laid *six deep*, or cover it with $5 bills, and spread $1 bills all over these!

**"No Shoe, No Horse,"** runs the old saw, but I say "nay—that is not true."—Not a nail has been driven in any hoof in my stable since February, 1881. I had four young horses, one in contant use, two others used frequently single and double, in all weathers and in all conditions of the roads. Two old horses were about two months in getting good feet under them on account of their shelly hoofs—made so by nails. Their feet finally became hard, and just as tough as the colts'. They were used all the time, did all the farm work and "teaming," until I sold one and loaned the other. With more horses than I needed, no *one* was worked very much. The feet of the old horses were worn a good deal, but not enough to need shoeing; the colts had to have their feet rasped off and shaped now and then. If I had had much more work for them, no doubt "toe-clips" would have been needed—and if we had had a very icy time I would have had a set of steel shoes of the "Good-enough" pattern tacked on one horse "all around." We took great comfort in driving; the horses certainly stood up better than if shod and the calks had worn a little smooth. They did not "ball up," in soft snow, in the least. They did not throw snow balls back into the sleigh. They travelled without wincing over the roughest frozen roads, and I have not known of a slip or a stumble all winter. So much for the experiment of which I wrote last summer.—Mason C. Weld.

**Traps for the June Bugs.**—"A. F. N.," Beaver Dam, Wis. There is probably no better trap than that given in Nov. last, page 489, which is a French invention with Yankee improvements. This throws a powerful light in all directions and attracts insects from a distance. A cheap trap is to cut a barrel in halves to make two deep tubs, and place a few inches of water in the bottom of each, and set a lamp of some kind in the center. It will be well to fix some kind of a shield at a little distance above the top of the lamp chimney to prevent the bugs from falling into it and thus interfering with the flame.

**Keeping Pop-Corn.**—"H. T. W." Always keep the corn on the cob, and in a cool place. If shelled, it loses its moisture sooner, and after a while will not pop well, as there is not water enough to make the steam which bursts it open. If kept on the ear in a hot, dry room, it will, in a week or two, be very unsatisfactory. The crib where other corn is kept is a good place for popcorn, or it may be put in any room where there is no fire.

**Those Bad Sparrows.**—There was much satisfaction, for a few years, with the result of introducing the English Sparrows into New York City, and soon after into other cities and into many villages. They destroyed the caterpillars or "measure worms," which were annually doing great injury to our shade trees. But the sparrows have multiplied so rapidly that they have become a serious nuisance, and effective measures are already necessary to reduce their numbers. Once in possession of any place they drive off nearly all the native songsters, while they themselves afford no sweet music, and they are, moreover, homely birds at best. And worse still, they destroy many seeds, and grains, and attack most kinds of fruits and garden vegetables. —In the mild climate of Australia they have so multiplied that a Government Commission was appointed to look into the matter. The report of this Commission recommends active and prompt measures for the destruction of the Sparrows, before they have another season's multiplication, such as rewards for their eggs and heads, poisoned water in summer, and sulphur fumes under their roosts at night, plaster of Paris mixed with oat meal, etc. The report says, "the sparrows are increasing at an astonishing and alarming rate, under despairing conditions to the cultivator, that he can not control; the seed is taken out of the ground, the fruit buds off the trees, the sprouting vegetable as fast as it grows, and the fruit ere it is ripe."...."They attack apricots, cherries, figs, apples, grapes, peaches, plums, pears, nectarines, loquats, olives, wheat and barley, peas, cabbages, cauliflowers, and garden seed ..."

**More About "Graham Gems."**—Mrs. "H.," Caldwell, N. J., writes that to make perfect gems, the essentials are: Cast-iron gem pans, good flour, and a *very* hot oven—one that would burn anything else. She directs: 1 egg, well beaten; 1 cup cold water; 1 cup sweet milk; a little salt. Stir into these enough Graham flour to make it too thick to pour, but just drop from the spoon. Place the gem pans on the top of the stove until they are heated, drop in the mixture, and bake from 20 to 30 minutes in the hot oven.

**Pruning Knives.**—We have recently tried a pruning-knife made here, which shows that we need not depend upon England for such implements. It requires long usage to properly judge of the material, but appearances are in its favor; strength is evident, and so is good shape. One important point has evidently been considered, the handle fills and fits the hand; no matter how good a pruning-knife may be, unless the handle is a handful, it will be tiresome to work with. This knife, which also has a budding-blade, and another for general use, is made by Maher & Grosh, Toledo, Ohio, whose knives and cutlery of other kinds have already acquired reputation elsewhere.

**Preserved Eggs.**—Several have asked about a method of preserving eggs other than the usual one with milk of lime. Upon inquiry among the large dealers, we find that eggs preserved in any other manner than with lime are not known in the market. Those who offer Flowers of Sulphur colored with lamp-black under the fraudulent name of "Ozone," claim that eggs can be preserved very cheaply by its use. We can only say that whatever this sulphur under the name of "Ozone" will do, may be done by sulphur under its proper name. —That it will preserve eggs, we have no proof.

**"Living in the Basement and Sleeping in the Attic."**—As a specimen of how many people —a great multitude of them in the aggregate—sacrifice comfort and health to a false notion of maintaining "respectability," we quote the remark of a friend made just now: "They eat and live most of the time in a dark, damp basement, or in a back room, where the cheerful, health-giving sun-light has little entrance, and sleep in small attic, sun-heated rooms, poorly ventilated, that they may keep the best part of the house in 'Parlor' and 'Spare room' to be occupied by others only a few times during the whole year."

**Feeding Whole Corn to Horses.**—There is much talk about a cheap grist-mill, that will grind corn and other grain, and save farmers from paying toll to the miller. An admirable pattern for such a mill, which has come down to us from the ancients, is to be found in every horse's mouth, if he is not too old. The jaw-teeth seem to have been made on purpose for this kind of work, and if we listen to the noise of the grinding, as the horse puts his nose into the pile of shelled corn, or does the shelling himself from the cob, he seems to have great satisfaction in doing his own milling. But the ground corn is finer, is quicker eaten, and digests better, you say. Is that proved? Fast eating is a vice in a human being. Is it any better in a horse? If the horse does his own grinding, he must eat slower, the food is more thoroughly mixed with saliva, and probably digests better. The practice of feeding whole corn is more common in the prairie regions than in the East, where grist-mills are plenty. Possibly the feeding of whole grain not only saves the toll, but goes farther pound for pound. We need some experiments to test the comparative value of feeding grain whole or ground. It seem a pity to have so good a grist-mill, as stands in the stable, lie idle.

**Goats as Milk Producers.**—We often have an inquiry as to where goats may be procured. We now have a letter from a friend in Thorntown, Ind., who asks this question, and also requests that we give an article on the goat as a milk producer. The goat in southern Europe is used not only to produce milk, but as a vehicle to convey it to the consumer—the flock being driven from house to house, and each customer supplied from the "original fount."—In this country the keeping of goats is mainly confined to our Irish citizens. In large cities, like New York, many have squatted upon unoccupied lands, such as belong to estates in litigation or are waiting for the heirs to become of age. They have numerous shanties, some quite large and comfortable, and each family keeps one or more—usually more, goats. The neighbors of these settlements know a great deal about goats, and are obliged to provide self-closing gates to their premises, and to be always on the guard against invasion, as these animals will eat everything they can get a chance at, even the sheets and other articles hung out to dry. The goat uncontrolled can be a thorough nuisance. Many years ago the late Horace Greeley, having been advised to supply one of his children with goat's milk, purchased an animal. He gave his experience with it in a most amusing letter to the *American Agriculturist*, and concluded the statement of his troubles with: "It has barked everything on the place except the crow-bar."—Still, under proper care, the goat may be made a very useful animal. In European towns they are tethered, and if accustomed to this from the first, may be kept from doing mischief. A goat will live upon food that a cow will reject—in the cities when at large they subsist mainly upon show-bills which are pasted upon fences and dead walls. The goat begins to breed when six to nine months old, and goes with kid for four months. In Europe, the custom is to allow the first kid to suckle and take all the milk, with the idea that this tends to increase the size of the udder, and insure a greater flow in the future. A good goat will give a quart of milk at each meal, three times a day, it being the custom to milk thus often, the udder being so small that this is regarded as necessary. After three months the milk falls off to about two-thirds in quantity, and this yield continues until within three weeks of the time of coming in again. A larger supply of milk is given by tethered goats than by those allowed to run at large. The milk is regarded as richer, but more easy of digestion than cow's milk. It has a peculiar flavor, to which one soon becomes accustomed, and this is less manifest in animals kept singly, than in those that are herded together in flocks. But little is known about the breeds, or particular strains of these animals, but there is a general impression that the nearer the color approaches to black, the better milker the animal is likely to be. In Europe the kids are allowed to suckle for a week or two, and the males are killed for food. There is a general prejudice against the meat of the goat, but the writer has lived where this was the only readily obtainable fresh meat, and has on more than one occasion served a leg of a well fattened goat to those who assumed that it was mutton, and were not undeceived. A young kid is quite as good as "spring lamb," and most acceptable. The boys in the shanty settlements above referred to, early train the male kids to harness, and sell them at a good price. We answer many questions by saying that we know of no place where goats are on sale, but have no doubt that an advertisement in a city paper would bring abundant responses.

**Keeping Eggs—Also as to Onions.**—Mrs. "S. J. L.," Stamford, Ill., writes us, that she packs eggs in oats: putting in the bottom of a barrel a layer of oats, three inches deep; on this a layer of eggs, small end down, and so on alternating eggs and oats until the barrel is full. If fresh when put down, she keeps eggs packed thus through the hottest weather.—To the inquirers about sowing onions broadcast, Mrs. L. repeats "Punch's" advice to young people about to marry—"Dont." One of her neighbors who tried it "is now a sadder, and a wiser man."

**Imported Potatoes.**—With our own potatoes at $3 per barrel, and the abundant crop last year in Great Britain, it has been found profitable to import potatoes. We have seen some of these "furriners" as they were taken from the ship; the bags so rotten that they could scarcely hold together, and rather small, and badly shapen potatoes, black with adhering soil, and with sprouts two inches or more long. There has been some talk in the daily papers about the superior quality of a Scotch variety, "The Champion," which has caused several to inquire about it. We can only reply that, a few years ago, when potatoes in Great Britain rotted badly, "The Champion" was generally healthy, and in purchasing seed potatoes to distribute in Ireland, the British Government very properly bought only this variety. But as to planting "The Champion," or any other European variety, in this country, it would be a great mistake. *No* European variety of potato is worth cultivation with us, as has been shown by repeated trials. A few years ago we planted some 30 of the choicest English varieties, alongside of "Early Rose" and other American kinds, in the same soil, and with the same treatment. While we had full and satisfactory crops from our own varieties, the English was so light of very small potatoes, that we had very little more than we had planted, and those fit only for the pigs. This has been the result whenever the trial has been made.

**The Abutilons.**—As plants for window culture, the Abutilons have many admirable qualities. Their foliage is pleasing, and they are almost always in bloom. The old *Abutilon striatum*, often called "Flowering Maple," from the resemblance of its leaves to those of the Maple, is well known, but there are now many others with much handsomer flowers, as may be seen by reference to the catalogues. The now rather old *Boule de Neige* (Snow Ball), is one of the very best. Small plants only six inches high will bloom, and they will grow six feet and produce flowers in abundance.

**The Fuel Question,** to the settler upon a prairie farm is—for the first few years, at least, an important one. The accounts of the use of corn for fuel, strike the farmer in the older States as something like a "wanton waste." It is however, merely a question of dollars and cents, about which there should be no sentiment. If a farmer in a prairie locality can get more out of an acre of corn by feeding it to pigs than he can by selling it by the bushel, every one will say, "feed it by all means." So, again, if by burning the corn from an acre, he can get more effective work in running his steam engine, or in his kitchen, in cooking food, than he could from the fuel bought with the proceeds from the sale of that acre of corn, why should he not burn his corn? In feeding corn to the farm animals, a large share of it is actually burned, and there is really no more wrong in the rapid burning under the boiler than there is in the slow burning in the bodies of his working-oxen. It is no more wrong for the farmer to keep himself and his family warm by burning corn in the stove, and thus supply external heat, than it is to burn the same corn in his own body and those of his family in the form of Johnny Cake, to keep up the internal heat. The burning is essentially the same, though differing in rapidity. We hold it to be the duty of every prairie farmer—and every other—to do what seems best under his circumstances. If the best use he can make of a bushel of corn or 100 pounds of hay is to burn it, let it be burned. This fuel question is one to which we ask the attention of our western readers. Some one has been writing up the common Sunflower as a plant to grow for fuel. In a note in March (p. 127) we expressed our doubts as to the value of this plant, and now, before he could have seen the article referred to, we have an interesting letter from "J. A. O.," Goodhue Co., Minn., who says that he has tried the Sunflower as a fuel plant and regards it, so far as his experience goes, as a failure. He gave the plants fair cultivation, but they rarely grew over seven feet high, or more than an inch through. He says that unless they can be stored where rain or snow cannot reach them, they are utterly unfit for fuel, and in their best condition he regards them as a greatly inferior fuel to hay—meaning, of course, the wild growth of the prairies. In view of the importance of this matter, we ask our readers upon prairie farms to give us, for the benefit of others, their experience with fuel. Is there an *annual plant* that may be grown for fuel more profitably than Indian Corn? In March we advised growing the Ailanthus, and suggested Peach trees for fuel. Both of these require two years' growth before they become profitable. Who will suggest something better?

**Terrible Losses of War.**—An Italian Journal, the "*Secolo*," of Milan, gives a summary of only twelve of the wars that have occurred in Europe during the present century, in which it reckons losses amounting to 11,611,000 men, and the expense to $30,754,400,000. This is equivalent to killing nearly every full grown man now in the United States; and the cost equals nearly Six Hundred and Seventy-six Million Dollars more than the value of all the lands, buildings, and personal property of our entire country reported in the census of 1870, which was $30,068,518,507.

**About Insecticides and Fertilizers.**—We never use, or advise others to use, any medicine, unless we know its exact composition, and on principle exclude a very large amount of advertising of this kind, (which would be very profitable, including advertisements of medicines for animals,) unless we know what the alleged remedies contain. Carrying this principle still further, we do not advise the use of, and do not advertise, fertilizers, unless we know from the makers their exact composition; and the same rule holds good with compounds for killing insects. In short, we will not be accessory to the use, on man, beast, plant, or soil, of any substance or compound whatever, unless convinced that it may be probably useful and positively not injurious. When circulars of "garden dust," claimed to supply "all the necessary elements of plant food, and at the same time furnish a sure protection against the ravages of insects, worms, etc.," we ask for the formula, and if this is not forthcoming, we decline the advertisement. "Lawn Sand" is a most remarkable sand, which, spread upon the lawn, will not only kill the weeds, but promote the growth of the grass! This very knowing kind of sand has not, so far as we are aware, crossed the Atlantic, but we are surprised to see English journals, the conductors of which know better, permit such trash to be set before their readers in their advertising pages.

**Silk Worms and Mulberries.**—We are glad to note a renewed interest in silk culture; and trust that it may not run into an excitement. We gave in March (page 107) the views of those who have given most attention to the subject, and with which we heartily agree. Until silk culture becomes a home industry and carried on by those members of the family whose services can not be otherwise profitably employed, it will not be a success. Inquiries continue to come for eggs. The first step in silk culture is to secure a supply of food for the worms. This must be some kind of White Mulberry or the leaves of Osage Orange. In many States there are hedges of Osage Orange which can supply food. Prof. Riley, who has experimented with this food, says, if, when the worms get large, they are not fed the tender succulent leaves, but only the firmer ones, there will be no appreciable difference in the silk from this food as compared with that from Mulberry. Those who have no hedges of Osage Orange must turn their attention to establishing a plantation of some kind of White Mulberry. There is scarcely anything to add to what was said in March. In all the older States there are trees, mostly relics of the "Multicaulis mania," from which cuttings may be procured. We have before referred to the "Women's Silk Cultural Association" of Philadelphia, which we understand is free from any speculative motives, but is to act as a medium between the widely scattered silk raisers and the buyers, their chief object being to advise and instruct. The Corresponding Secretary writes that in the first year of their operations they sent trees to 20 States and eggs into 25 States, and that they received cocoons from 21 States. We can not do better by our inquirers than to refer them to this Association.

## Great Waste of Good Food.

Meats and almost all other foods are 25 to 50 per cent. above average prices. There is one source of valuable nutriment that is largely overlooked. On the average the skimmed milk that has supplied cream for five pounds of butter contains fully four pounds of casein, which is the chief constituent of cheese. Skim milk cheese is almost pure casein. This casein is very similar to lean beef in its composition, and when eaten serves the same purpose as lean beef in nourishing and strengthening the muscles and other parts of the body. In some dairy establishments the skimmed milk is used for making cheese which is sold at a somewhat lower price than the whole milk cheese. Such cheese is one of the best sources of nutriment for the great mass of people engaged in hard labor. But taking the country together, in butter dairies and in families making butter, the skimmed milk is mainly fed to swine if not thrown away. It is too valuable for this. We invite special attention to what Mr. Willard says of Cottage Cheese on another page of this number. A little study of the subject and a little practice, will enable any butter maker to obtain for each five pounds of butter, four pounds of a most nutritious article of food, one that is easily digested and which is very palatable when properly prepared. Mr. Willard gives general directions. A great point is to avoid letting the soured milk become bitter by long standing, or by remaining in wood or metal vessels that will affect its flavor; or by exposing it to foul air or odors.

Any butter maker can soon secure a regular paying market for Cottage or curd Cheese, by offering a few samples of good quality in neighboring villages or cities. It will be a boon to multitudes of families to have such an article brought to their notice, and afterwards regularly supplied to them. It is safe to say that the actual addition to the food supplies of the country may be increased by millions of dollars every year, if we get into the way of using the casein of skimmed milk that is now treated as of comparatively small account.

**A Pound of Money.**—Of United States Gold Dollars (25.8 grains) about 271½ weigh one pound avoirdupois. Of Silver Coins, the new Silver Dollar ("Buzzards")—412½ grains—17 weigh almost exactly one pound. Of the "Trade Dollars"—420 grains—about 16⅔ weigh one pound. The "halves," "quarters," and "dimes," are proportionately lighter, and require $18.14½ of them to make a pound avoirdupois.—Of "Nickels," the 5-cent pieces weigh 77.16 grains, or about 90 to the pound. The "nickel" 3-cent pieces weigh 8.0 grains, or 233 to the pound. The small copper cents weigh 48 grains, or about 146 to the pound, or about 9 to the ounce.


FEARLESS.

VICTORIES — UNEQUALED

The **only** machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last **Gold Medals** given by the New York State Agricultural Society on Horse-powers and Threshers, and is the **only** Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the **standard** machine of this country. Catalogue sent free. Address

HINARD HARDER, Cobleskill, Schoharie Co., N. Y.

**WHITMAN'S Fountain Pump** for washing Windows, Carriages, etc. Protects buildings from fire, & trees, vines, etc. from insects, potato-bugs and canker-worms. No Dwelling, Country Home, or Factory should be without the **Fountain Pump.**

Send for **large illustrated** Circular. **J. A. Whitman,** Patentee and M'f'r. Providence R. I.

All Bee Keepers need the **Fountain Pump.**

**ADRIANCE and ADRIANCE BUCKEYE**

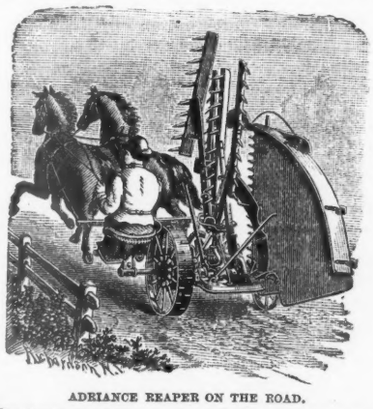
**MOWERS AND REAPERS,**

MANUFACTURED BY

**ADRIANCE, PLATT & CO.,**

**POUGHKEEPSIE, N. Y.**

**Office, 165 Greenwich Street, New York.**



ADRIANCE REAPER ON THE ROAD.

The *Hundreds of Thousands* of *Farmers* who have tested these machines bear witness that they are the most profitable for the farmer to buy, because they SURPASS ALL OTHERS in *Simplicity, Strength, Durability,* and **Lightness of Draft,** while they DO THE BEST WORK, under all circumstances, and COST THE LEAST TO KEEP IN REPAIR. *There are no mysteries about them,* but all is mechanically simple, solid, and easily understood.

Our product of machines for the harvest of 1881 was an INCREASE OF SEVENTY PER CENT. over the large average of our sales for the preceding ten years, but we were not able to meet the demand. ORDER EARLY.

*Descriptive Circulars* forwarded by mail.

**THE DeYOUNG**

**HUSK HACKLER AND SEPARATOR.**

**(PATENTED.)**

A Labor Saving Machine that shows **immense profits** in the manufacturing of Corn Husks for the Mattress trade. Capacity of Machine, 3 to 5 tons a day. Cost to manufacture, **66 cts. a ton.** Market price of husks, after once passing through the Machine, **$50 a ton.** Send for full particulars. **State or County rights for sale.** Address, **J. B. DeYOUNG,** Manufacturer and Patentee, Box **2295, Philadelphia, Pa.**

**BEATTY'S BEETHOVEN ORGAN**

**Suitable for the Parlor, Chapel, Lodge, Church or Sabbath School.**

I announced, during the Winter months, that the price of the Beethoven would be **$125, on and after May 1st, 1882,** on account of the great rise in labor and material; but having recently largely increased my facilities (such as building a switch-back railroad, so as to handle coal, lumber and organs without expense of cartage, adding new labor-saving machinery, &c.) for making this particular style of Organ, and building and shipping them at the rate of over 1,000 per month, I shall continue to sell the following instrument for **ONLY $90.00,** which includes a beautiful Organ Bench, Music Book, etc., securely packed, boxed and delivered on board cars. **Order now;** as the instrument cannot be sold at such figures for any great length of time. **Factory running day and night** to fill orders promptly.

Every BEETHOVEN sold is a standing advertisement. If you will order one, and give it a trial at your own house, this is all I ask. It speaks for itself. Thousands of testimonials have been received from influential persons.

This beautiful Organ is manufactured from the choicest of thoroughly seasoned and well selected Black Walnut. It will stand the test of any climate. It is elegantly proportioned, ornately carved, and has fret and gold arabesque ornamentation. The case has a rubbed varnish finish, will not take the **dirt or dust.** It is called **'BEETHOVEN,'** as its musical effects are the most wonderful yet produced at any price, hence it is named after the World's greatest composer. The variety, expression, tone beauties and combination effects cannot be equalled by **any other manufacturer at less than $450. Why? Because the Patented Improvements are my own and no one else can build an Organ on this plan.**

***27 STOPS.***

(1) Cello, 8 feet tone, (2) Melodia, (3) Clarabella, (4) Manual Sub-Bass, 16 feet tone, (5) Bourdon, 16 feet tone, (6) Saxaphone, 8 ft. tone, (7) Viola di Gamba, 8 ft. tone, (8) Diapason, 8 ft. tone, (9) Viola Dolce, 4 ft. tone, (10) Grand Expressione, 8 ft. tone, (11) French Horn, 8 ft. tone, (12) Harp Æolian, (13) Vox Humana, Tremulant, (14) Echo, 8 ft. tone, (15) Dulciana, 8 ft. tone, (16) Clarionet, 8 ft. tone, (17) Voix Celeste, 8 ft. tone, (18) Violina, 4 ft. tone, (19) Vox Jubilante, 8 and 4 feet tone, (20) Piccolo, 2 ft. tone, (21) Coupler Harmonique, (22) Orchestral Forte, (23) Grand Organ Knee Stop, (24) Right Knee Stop, (25) Automatic Valve Stop, (26) Right Duplex Damper, (27) Left Duplex Damper.

With grand and thrilling accessory and combination effects.

This Organ contains 10 full sets **Golden Tongue Reeds,** arranged on a new and patented plan surpassing all previous attempts at organ building. It has Upright Bellows, with 3 sections, giving an increase of power over the usual style of bellows made by other manufacturers. Fitted with Steel Springs, Music Pocket, Sliding Fall with Lock (nickel plated), Elegant Lamp Stands, Nickel-Plated Foot-plates on pedals, which never rust or wear, besides 2 Knee Swells, Handles and Rollers for moving. With each Organ hereafter an elegant solid Organ Bench will be sent, free of charge. This is far superior to the ordinary stool for Organ use and is more ornamental, useful. **Order direct from this advertisement.** It has been improved and perfected since first invented, and those who want music and not furniture, (although this case is very handsome), should order this Organ.

*If you want an Organ built on the old plan with 8 to 11 Stops, such as is sold by other makers, I can and will furnish them new for $30, $40, $50*

27 STOPS

10 Full Sets GOLDEN TONGUE REEDS.

$90

NEW STYLE No. 9000. SOLID WALNUT CASE. Height, 75 ins., Length, 46 ins., Depth, 24 ins.

**Visitors Are Always Welcome.**—A Free Coach with polite attendants, meets all trains. Five dollars ($5) allowed to pay your traveling expenses if you buy.

**How to Order by Mail**—Remit by **Bank Draft,** Post Office Money Order, Registered Letter, or by express, prepaid. Beethoven Organs shipped same day order is received. Satisfaction absolutely guaranteed in every particular, or money promptly refunded with interest, if the instrument is not precisely as represented, after one year's use. Surely nothing can be fairer than this. **Organs built after the old plan, 8 to 11 Stops, only $30, $40, $50.** Cathedral Church, Chapel, Parlor and Cabinet organs, $30 upwards. Pianofortes, Grand, Square and Upright, $125 to $1,600. ☞ If you cannot call and see me personally, be sure to order a Beethoven on one year's trial, or send for Circulars, **Illustrated Catalogue,** and Quarterly Mid-summer Edition, before you decide to buy elsewhere.

Address or call upon **DANIEL F. BEATTY, Washington, New Jersey.**

GET THE BEST

## A NEW BUTTER-WORKER

TRY ONE

We are now ready to offer to Dairymen and to the Trade, a HAND BUTTER-WORKER, operating on the principle of *direct and powerful pressure*, instead of rolling, grinding, or sliding upon the butter.

We claim that it is the *only* Butter-Worker which will *certainly, quickly,* and *easily,* take out *all* the buttermilk, and which *does not* and *cannot* injure the grain of the butter. *It works in the salt as easily and as well.*

THE GENUINE

## BLANCHARD CHURN

GET THE BEST

Five sizes made for Family Dairies. Five sizes for Factory use. All our goods are of perfect stock and the best workmanship. They are strong, simple, efficient, convenient and durable. They continue to be

THE STANDARD CHURNS OF THE COUNTRY.

Inquire of the nearest Dealer in such goods for a "BLANCHARD BUTTER-WORKER," or a *genuine* "BLANCHARD CHURN," and if he has none on hand, send postal for Prices and Descriptive Circulars to

THE INVENTORS AND SOLE MANUFACTURERS,
PORTER BLANCHARD'S SONS, CONCORD, N. H.

## COOLEY CREAMERS.

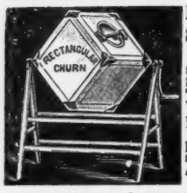
The PIONEERS and the STANDARD. Over **15,000** in daily use. FOUR STYLES. TEN SIZES EACH. SKIM AUTOMATICALLY. FOUR GOLD MEDALS and SIX SILVER MEDALS for SUPERIORITY. Also Churns, Butter-Workers, Butter-Printers, etc., etc. Send for Circulars.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

## PATENT CHANNEL CAN CREAMERY.

Deep setting perfected. Will get all the cream without ice. Includes a perfect refrigerator box. Cans are sold without boxes, and furnished with glass gauges when requested. Special attention given to fitting out large creameries. One creamery at wholesale where I have no Agents. Agents wanted. Send for circular,

**W. E. LINCOLN,**
Warren, Mass.



Rectangular and Square **BOX CHURNS**

**Cheapest and Best.** No inside fixtures, and *always reliable.* Six sizes of each kind made. Three sizes of the *Lever* Butter Worker made. Best material used, and every Churn and Butter Worker *warranted* exactly as represented. One Churn at wholesale where we have no agent. *Send Postal for Circulars.*
AGENTS WANTED.

**CORNISH & CURTIS, Fort Atkinson, Wis.**

THE CELEBRATED

## WARREN MILK BOTTLES.

PATENTED MARCH 23d, 1880.

Nothing but Glass in Contact with the Milk.

**Safety Shipping Boxes.**
Quarts, Pints, ½ Pint, Cream.

Descriptive circular on application.

Warren Glass Works Co.,
FACTORY.
**Cumberland, Md.**
**44 College Place, New York.**

## THE "LILLY" BUTTER-WORKER

**Sweeps the Field.**
**Special Premium** of a Silver Medal at late Pennsylvania State Fair. **First Premium** at the late Connecticut State Fair, and at Dairymen's and County Fairs innumerable.
For ease and thorough work it **is absolutely unequaled.**
Circulars free.
**C. H. R. TRIEBELS,**
No. **316 Race Street,**
PHILADELPHIA, PA.

## FOR SALE. Iowa Farm of 1,000 Acres.

Situated at Glidden, Carroll Co., Iowa, the north line of the farm being the track of the C. & N. W. R. R. Co. All fertile land—about two-thirds rolling prairie, and one-third rich bottom land—all under fence—180 acres cultivated, balance grass and pasture. Frame house, 10 rooms, tenant house, barn 40 by 100, with basement, plenty of water, suitable for either a stock farm or for general farming. Three-fourths of a mile from village, with good school, churches, etc. For full information call on, or address
**ELISHA LOCKE,** Clifton Heights, Cincinnati, O.

## MOSELY'S CABINET CREAMERY

Has taken more FIRST PREMIUMS and MEDALS than any similar apparatus in America.

Requires less ice to operate it than any other Portable Creamery on the market. Is protected by letters patent. INFRINGES NO PATENT OR DEVICE OR PROCESS.

**CREAMERY AND REFRIGERATOR COMBINED.**

For Circulars, address the Manufacturers,
MOSELY & STODDARD M'F'G CO.,
Poultney, Vermont.
**Agents Wanted.**
ROBERT C. REEVES, Gen. Agent for New York City and vicinity, 185 and 187 Water Street, New York.

* * * * * * * * * * * * * * * * * * *

**DO NOT SEND YOUR MILK** to the factory, or buy any cans or pans until you have written for circulars, and full information of

**THE FERGUSON BUREAU**

## CREAMERY

It surpasses all other systems in quantity and quality of butter, in ease and cleanliness of working; is endorsed by the best dairy authorities. For circulars, price lists, and valuable information address

**The FERGUSON Mfg. Co., Burlington, Vt.**

* * * * * * * * * * * * * * * * * * *

## REID'S CREAMERY

SIMPLEST & BEST.
**Agents Wanted.**

## BUTTER WORKER

Most Effective and Convenient.
Also **Power Workers,** Capacity **10,000 lbs. per DAY.** Butter Printers, Shipping Boxes, etc. *Send for circular.*

**A. H. REID,**
**26 S. 16th St., Phila., Pa.**

Wash Buggies with Whitman's Fountain Pump. Send for large **Illustrated Circular.** J. A. WHITMAN, Providence, R. I. Throws water 50 feet. Easily carried. No country home should be without the Fountain Pump.

# GUNS, etc.

**At a Bargain.**

So many inquiries come to us from our readers, we have made special arrangements whereby we are enabled to furnish them with Guns of every make at very low prices. Any one of the readers of this paper who desires to secure a double or single barrel shot gun—breech or muzzle loader—or a rifle of any make, should address us, stating *what they want.* We will give any desired information regarding shot guns or rifles of any kind, and send them to any point at much less prices than they can be obtained elsewhere. Our supply includes the guns of the best makers. Address

**ORANGE JUDD CO.,**
**751 Broadway, New York.**

STEEL PLOWS. FURST & BRADLEY MFG. CO. CHICAGO, ILL.

The most uniformly hard and perfectly tempered steel plows manufactured.
PAMPHLET SENT FREE.

Teachers Wanted.

**"Art Made Easy."**—Drawing and Painting taught by Mail. New Methods for self instruction, invaluable to every Artist, Teacher, Amateur and Beginner. Stamp for illustrated circulars. Original designs for Art Needlework, Etching on Linen, &c. CERA PAINTING: A new beautiful art of painting without oil, water colors or brushes. **Eugene Pearl,**
Studio, 23 Union Square, N. Y.

## NEW CROP TURNIP SEEDS.

Warranted strictly fresh and genuine. Purple Top Flat, White Flat, Red Top Globe, White Egg, Golden Ball, 75c per lb. by mail post-paid. White Globe, Large Cow Horn, Yellow Aberdeen, Amber Globe, Improved Ruta Bugs, 70c per lb., postpaid. Customers ordering by freight or express can deduct 16 cents per pound from these prices. Seed Buckwheat, Millet, Hungarian, Golden or German Millet at low prices. Send for Catalogue. JOHNSON & STOKES,
Seedsmen, 1114 Market St., Philadelphia

## 1 MILLION PLANTS.

**500,000 Sweet Potato,** $2 00 per 1,000; 5,000 or more, $1.50 per 1,000. **400,000 Cabbage Plants,** Premium Flat Dutch, Drumhead, and all other good early and late varieties, 50c. per 100; $2.50 per 1,000; 5,000 or more, $2.00 per 1,000. **100,000 Tomato Plants,** Livingston's Perfection, Acme, Paragon, etc., 75c. per 100; $4.00 per 1,000. Cauliflower, Egg. Pepper, and Celery Plants, at low prices. Carefully packed and safely shipped to any point.

Address, **JOHNSON & STOKES,**
**1114 Market St., Philadelphia.**

## HARBACH'S MONETTE

NEW MUSICAL WONDER ONLY
In Handsome Walnut Case
*Simplest in the World, Elegant, Melodious, Powerful,* **16** Notes. Plays any Tune. Music **4c.** a foot. More Condensed and Cheaper than any other. *Musical Wonder Catalogue Free*
**$5**
**HARBACH ORGANINA CO.**
**809** Filbert St., Philadelphia.

## Little's Sheep Dip.

One gal. makes from 25 to 50 gals. for **Scab,** or 100 gals. for **Ticks** and **Lice.** COLD water only required. Price, $1.50 per gal. Never fails. Send for prospectus to ALFRED MITCHELL, 317 Broadway, New York. (P. O. Box 517.)

**Just Published.**

## THE HORSE;

**HOW TO BUY AND SELL.**

A Plain and Comprehensive Guide to the various Points to be noted, showing which are essential and which are unimportant. By Peter Howden.

PRICE, POST-PAID, $1.00.

ORANGE JUDD COMPANY,
751 BROADWAY, NEW YORK,

A NEW EDITION OF

## EDWARD EGGLESTON'S NOVELS.

**Uniformly Bound in One Set.**

**FIVE VOLUMES.**

The chief critical authorities have awarded to Dr. Edward Eggleston a very high place as a writer of genuine American fiction, and the immense sale of his works is the best evidence of their popularity. A new edition of these works is now issued, designed to meet an often expressed wish that they could be obtained in uniform style, in sets. They are bound attractively and uniformly, in five volumes, as follows:

**THE HOOSIER SCHOOLMASTER.** Finely illustrated, with twelve full-page engravings, and numerous other cuts. Price $1.25.

**THE END OF THE WORLD.** WITH thirty-two illustrations. Price $1.50.

**THE MYSTERY OF METROPOLISVILLE.** Finely Illustrated. Price $1.50.

**ROXY.** A TALE OF INDIANA LIFE. HANDsomely illustrated. Price $1.50.

**THE CIRCUIT RIDER.** A TALE. HANDsomely illustrated. Price $1.50.

**Price of the Set, Complete, $7.25.**

ORANGE JUDD COMPANY,
751 BROADWAY, NEW YORK.

# Quick Mails AND Fast Express

ENABLE YOU TO PURCHASE

# DRY GOODS

BY LETTER

—FROM—

## JORDAN, MARSH & CO.,

Boston, Mass., U. S. A.,

BOOKS, PRINTS, LINENS, LININGS, CORSETS, HOSIERY, PARASOLS, BLANKETS, WOOLLENS, HAMBURGS, LACE GOODS, UNDERWEAR, UPHOLSTERY, DRESS GOODS, LADIES' SUITS, WHITE GOODS, INFANT WEAR, COLORED SILKS, SATINS, VELVETS, TOILET ARTICLES, MISSES' CLOTHING, COLLARS AND CUFFS.

GLOVES, CLOAKS, SHAWLS, RIBBONS, FRINGES, BUTTONS, CARPETS, COTTONS, FLANNELS, MILLINERY, UMBRELLAS, BLACK SILKS, LADIES' TIES, FANCY GOODS, BLACK GOODS, SMALL WARES, LADIES' CLOAKS, BOYS' CLOTHING, HANDKERCHIEFS, DRESS TRIMMINGS, GENTS' FURNISHINGS, LADIES' UNDERWEAR

With as much satisfaction as if you were buying in person. Send for our

Descriptive Catalogue,

MAILED FREE ON APPLICATION.

SAMPLES promptly forwarded. ORDERS executed with the most scrupulous care and despatch.

**JORDAN, MARSH & CO.,** Washington and Avon Streets.



**AGENTS** Are making **$100** PER MONTH SELLING **MANNING'S ILLUSTRATED STOCK-BOOK**

Because every farmer needs it. It is the latest and most complete work ever issued in America treating of **Horses, Cattle, Sheep,** etc., their breeds, breeding, training, causes of disease, symptoms, and remedies. Over **1,000 pages, 400 Illustrations.** Highly endorsed by such eminent authorities as the President, Vice President, and Secretary of Philadelphia College of Veterinary Surgeons, Hon. J. W. Gibbons and others. Farmers, their sons, and **agents** desiring profitable work should send at once for full particulars and terms. Address **HUBBARD BROS., 723 Chestnut St., Philadelphia**



**WHITMAN'S FOUNTAIN PUMP.**

A Lady or Child can use it. Send for large handsome Illustrated Catalogue. J. A. Whitman, Providence, R. I.

Protects Vines, &c., from Insects



**Elegant! Elevating! Entertaining.**

**JULIA McNAIR WRIGHT'S NEW BOOK "Practical Life." { The Key to Fortune / In all Avenues of Life**

Rev. Theo. L. Cuyler, D.D., says: "*I am quite delighted with it. It ought to be in every house.*" Central Baptist, St. Louis, says: "*It is a thoroughly good and beautiful book.*" The Pittsburg Christian Advocate, says: "*Its lessons need to be taught and enforced in every household.*"

600 pp. Clear type, artistic binding, magnificent *full page colored plates.* Prices low. Terms liberal. Sales rapid. AGENTS WANTED EVERYWHERE. Send for particulars to

**J. C. McCURDY & CO., Philadelphia, Pa.**



**11th** CLEARANCE CATALOGUE OF OLD and NEW BOOKS at 30 to 60 per cent. discount from publisher's prices. Illustrated, Standard, and Rare Books. Send postal for **best book Catalogue** ever issued FREE.

**ESTES & LAURIAT,**

301-305 Washington St., opp. "Old South," BOSTON, MASS.



**6 MONTHS FREE!**

THE PRACTICAL FARMER is the leading WEEKLY AGRICULTURAL JOURNAL of the country. ESTABLISHED IN 1855. Convenient size, 16-page, pasted, folded and cut. It presents in the most compact manner all that is of interest to the farmer and his family. It is acknowledged authority on Agriculture, Horticulture, Live Stock, etc. Devotes space to Home and Youth, and gives choice original, contributed and selected matter in all its departments. Has better market reports than any other agricultural paper, embracing the latest quotations from the principal trade centres. Treats editorially all matters affecting the farmer in a fearless and independent manner. It is just what the farmer wants. It is what the farmer's wife wants. It is what the farmer's children ought to have. Gives more reading matter for the money than any other agricultural journal, and is of more practical benefit to the farmer. In order to push its circulation to the highest possible number during the summer months, we offer to send it prepaid from July, 1882, to Jan. 1st, 1884, for $1.50, the regular price for a single year—26 weeks of 1882 for nothing. Send $1.50 before July 1st to get the paper from that date; all sent after that date will be filled from date of reception. SEND NOW and get THE PRACTICAL FARMER 18 months for one year's subscription.

Address, THE FARMER CO.,
13th & Market Streets, Philadelphia, Pa.



**Artistic Homes**

Just published. 44 Plans, Elevations, and Interiors of **QUEEN ANNE and COLONIAL Villas** and **Cottages,** costing from **$700** upward. Enclose 3c. stamp for illustrated circular. Price, **$3.50. Agents Wanted.**

**A. W. FULLER, Architect, Albany, N. Y.**



**Lady Agents** Can secure permanent employment with good salary selling **Queen City Skirt and Stocking Supporters,** etc. **Sample outfit Free.** Address **Queen City Suspender Co.,** Cincinnati, O.



**MADISON MACHINES.**

Sew beautifully, run lightly, do any kind of work, and are as durable as hardened steel can make them. Endorsed by *Agriculturist.* Prices very low.

MADISON MACHINE CO., 406-408 Broadway, N. Y.



**HOLMAN'S PICTORIAL FAMILY BIBLE.**

Containing both versions of the **NEW TESTAMENT.** We make **No Extra Charge** for this addition. Other publishers charge $1. **FINE PHOTOGRAPH ALBUMS ELEGANT DESIGNS, HANDSOMELY BOUND**

Our Bibles Contain 2,000 Pages, 2,500 Illustrations.

**Extra Inducements Offered to Energetic Agents.**

Illustrated Catalogue sent on application.

**A. J. HOLMAN & CO.,** 1222 Arch St., Philadelphia.



**FOREST AND STREAM BIRD NOTES.**

The Forest and Stream Publishing Company (No. 39 Park Row, New York), have just published a book, which should be in the hands of every one who is interested in bird life. It is entitled "FOREST AND STREAM BIRD NOTES," and contains a summary of everything published in the first twelve volumes of the FOREST AND STREAM (six years) about song, insectivorous, and game birds. The Notes relate to almost every bird of America, and include every section of the country.

Dr. Elliott Coues, the distinguished ornithologist, writes of the BIRD NOTES: "My copy at once takes its place at my elbow, where it must remain as long as I have occasion to write about American birds. Congratulating you upon the fact that the rich ornithological contents of your paper are made so readily available, I remain, very truly yours, ELLIOTT COUES."

Sent post-paid on receipt of price, $1.50.



**PRACTICAL DOG TRAINING,**

OR

**Training vs. Breaking.**

By S. T. Hammond, Kennel Editor of FOREST AND STREAM. A practical book for amateurs. Details the method successfully employed by the author for more than 40 years. With this book, every man can train his own dog, and will find the task a pleasure.

Sent post-paid on receipt of price, $1.



**SHORE BIRDS.**

I. Haunts and Habits. II. Range and Migrations. III. A Morning Without the Birds. IV. Nomenclature. V. Localities. VI. Blinds and Decoys. This is a reprint of papers from the FOREST AND STREAM. Pamphlet, 45 pages. Price, post-paid, 15 cents.



**SHOOTING.**

Its Appliances, Practice and Purpose. By JAMES DALZIEL DOUGALL. Contains practical information on guns and gunning. Its chapters treat of the Barrel, the Stock, Locks, Triggers, Recoil, Breech-Loaders, Rifles, Care of Guns, Ammunition, Loading, Dogs, Grouse, Woodcock, Black Game and Partridge Shooting. The chapter on "The Purpose" of Shooting is the best defense of legitimate field sports ever published. Price, post-paid, $3.



**Forest and Stream.**

A Weekly Journal for Town and Country Readers. Terms, $4 per year; single numbers 10 cents. Address,

**Forest and Stream Publishing Co.,**
39 Park Row, New York.

COMBINED
CULTIVATORS
FURST & BRADLEY MFG CO.
CHICAGO ILL.
Can be used as a riding or as a walking cultivator
SEND FOR PAMPHLET - SENT FREE.



**PRICE REDUCED,**

TO CLOSE THE EDITION.

**A SUPERB QUARTO VOLUME.**

**Beautifying Country Homes,**

**A Hand-Book of Landscape Gardening,**

By J. WEIDENMANN.

This very elegant, large quarto volume, is beautifully illustrated with numerous fine wood engravings, and with 17 full page and 7 double page colored lithographs of places already improved. It contains general directions for lawns, roads and drives, walks, hedges, trees and shrubs, gardens, ornamental grounds, hints on burial lots, etc., etc. The beautifully colored plans of improved places are accompanied by descriptions, giving the names and position of the various trees and shrubs employed in planting, thus providing a complete *planting map.*

PRICE HITHERTO, $15. NOW REDUCED TO $10, POST-PAID.

**ORANGE JUDD CO., Publishers,**

**751 Broadway, New York.**



**WHITMAN'S Fountain Pump**

A Lady or Child can use it. Send for large handsome Illustrated Catalogue. J. A. WHITMAN, PROVIDENCE R.I.

For Washing Windows, Carriages, etc.



**SWITZERLAND ENDORSES PENNSYLVANIA**

Pronouncing THE LANCASTER WATCH

MANF'D BY LANCASTER WATCH CO., LANCASTER, PA.,

**"THE BEST WATCH MADE IN AMERICA."**

SEND FOR CIRCULAR.



**Birds** HOLDEN'S New Book on Birds 128 pp. 30 Illustrations. All facts on all birds. 25 cents, stamps. Holden's Bird Magazine, an Illustrated Monthly. Articles on New Birds, Care, Food, Mating, Raising, Diseases. Bird Market. $1.50 a year. Sample copy 15 cents. Stamps.

**G. F. HOLDEN, 387 6th Ave., New York.**



**THE CHICKERING PIANO**

Excels all other Pianos of American manufacture in its various patented improvements. The new designs in **CHICKERING GRANDS,** assuring larger results in **power** and **purity, length** and **sweetness of tone,** leave nothing to be desired. The Chickering **SQUARE PIANOS** in all the usual styles are unrivaled. The new **CHICKERING UPRIGHT** has the justly celebrated **patented metallic action,** which forever prevents the possibility of atmospheric interference with the action of the instrument, and adapts it for use in any climate.

**Send for Circular and Price List.**

**CHICKERING & SONS,**

Warerooms,

130 Fifth Ave., N. Y. | 156 Tremont-st., Boston.



AUTOMATIC FISHER. SAMPLE BY MAIL, 25 CENTS. AGENTS WANTED. NOVELTIES

Philadelphia Novelty Mfg. Co., 821 Cherry St., Phila., Pa.



**IF YOU** want to be a **Telegraph Operator,** send 25 cts. for the **Most Complete Telegraph Instructor** in the world. C. E. JONES & BRO., Cincinnati, O.

TRADE MARK
LITTLES CHEMICAL FLUID
The New Sheep Dip
NON-POISONOUS
(Patented in U. S., July 3, 1877.)
MORRIS LITTLE & SON, Proprietors and Manufacturers.
Is superior to all other Dips and cheaper.
Send stamp for many recent and important U. S. testimonials to T. W. LAWFORD, Gen'l Agent,
My Agency established April, 1879.
Mention this paper. Box 504, Baltimore, Md.

HOG RINGING A FAILURE.
OUR
TENDON CUTTER A SUCCESS.
ANIMAL CONQUEROR.

PT'D DEC. 21, '80, AND FEB. 7, '82.
By the use of this instrument we take from the Hog its power to root, by removing a section or piece of the tendon or muscle which operates the shovel at the end of the nose, thereby forever after preventing them from rooting.
THIS IS NO SNOOTER,
and we will convince the most skeptical that this little instrument will do its work effectually.
Any number of testimonials furnished on application.
If not found on sale in your locality, will send sample Cutter and Holder on receipt of $3.50. Address
EWING & CO., Decatur, Ill.
Manufacturers and Patentees.

ESSEX PIGS A Specialty.
75 to 100 Pedigree Pigs for delivery in June, six weeks to two months old. Write for prices.
Also Brown Leghorn (prize winners) EGGS, @ $1 per doz., and B. B. R. G. Bantam Eggs for Hatching (imported), @ $1.50 per doz., in new baskets. Safe arrival guaranteed.
C. W. CANFIELD, Bradford Co., Athens, Pa.

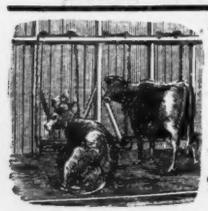
PIGS CHESTER WHITES, BERKSHIRES, POLAND CHINAS, JERSEY REDS, and YORKSHIRES. If you want extra stock of any age of the above breeds at very reasonable prices, DON'T FAIL TO WRITE TO US BEFORE PURCHASING.
BENSON, MAULE & CO., Philadelphia.

ESSEX PIGS.
30 litters, all pure bred, now old enough to ship. Pigs never better, and prices never so low. During the month of June, I will sell at the following low rates: Boar, $13; Boar and Sow, not akin, $25; Boar and two Sows, $35. One-third of the money to accompany the order; balance, if preferred, can be paid Express Co. on the safe delivery of the pigs. Pigs shipped when from 6 weeks to 10 weeks old. Boxes light, and express charges little, if any, more on a trio than on a pair. Address,
JOSEPH HARRIS,
Moreton Farm, Rochester, N. Y.

Chester White, Berkshire, and Poland China PIGS, and Setter Dogs, bred and for sale by ALEX. PEOPLES, West Chester, Chester Co., Pa. Send stamp for Circular and Price List.

HARNESS.
A Good, Substantial Single Harness.
Hand-made, full nickel-plated for $13.50. Call and see or send for sample. Also a complete assortment of RIDING SADDLES, BRIDLES, CARRIAGE ROBES, and DUSTERS, HORSE CLOTHING, and NETS.
C. B. SMITH & CO., 40 Warren St., New York.

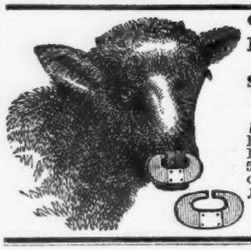
GOOD MEN WANTED everywhere willing to earn $5 to $10 per day, selling our new braided Silver Mould White Wire Clothes-Line, warranted to last a life-time. Please at sight. Sells readily at almost every house. Agents continually reporting grand success. Counties reserved. Terms and Samples free. Address,
GIRARD WIRE MILLS, Philadelphia, Pa.


ROBBINS' IMPROVED
CATTLE TIE.
(Patented May 31st, 1881.)
Important to Farmers.
Something New for
STOCKMEN.
The most practical Cattle Tie now in use.
Prices and Terms furnished on Application.
H. M. ROBBINS,
Newington, Conn.

THE PEOPLE HAVE PROCLAIMED
THE CLYDESDALE
THE KING OF DRAFT HORSES.
ANOTHER Importation Just Received. More to Arrive Soon FROM SCOTLAND.

POWELL BROTHERS,
SPRINGBORO, CRAWFORD COUNTY, PA.
Largest and Finest Collection in the World of
CLYDESDALE STALLIONS,
The best breed of Draft Horses. Also, an importation of the choicest PERCHERON-NORMANS to be found. Breeders of TROTTING-BRED ROADSTERS, and Importers and Breeders of HOLSTEIN and DEVON CATTLE. Rare individual excellence and choicest pedigree our specialties; at same time avoiding animals whose constitutional vigor, energies, and stamina have been impaired by high feeding and over-fattening.
☞ Catalogues free. Correspondence solicited. Mention American Agriculturist.

Composed largely of powdered Mica or Isinglass, is the BEST and CHEAPEST lubricator, in the world—the BEST because it does not gum, but forms a highly polished surface over the axle, reducing friction and lightening the draft; the CHEAPEST because it costs NO MORE than inferior brands, and one box will do the work of two of any other make. Answers as well for Harvesters, Mill Gearing, Threshing Machines, Corn-Planters, Carriages, Buggies, etc., as for Wagons. GUARANTEED to contain NO Petroleum. Sold by all dealers.
☞ Our Pocket Cyclopedia of Things Worth Knowing mailed free.
MICA MANUFACTURING CO.
228 Hudson Street, New York.
356 Euclid Ave., Cleveland, O.
31 Michigan Ave., Chicago, Ill.


CALVES & COWS
Prevented Sucking each other. Also,
SELF-SUCKING,
BY RICE'S PATENT Mal. Iron WEANER.
Used by all Stock Raisers. Prices, by mail, postpaid. For Calves till 1 year old 58c.; till 2 years old 87c.; older $1.15. Circulars free. Agents Wanted.
H. C. RICE,
Easthampton, Mass.

FURST & BRADLEY SELF DUMP
SULKY RAKES.
FURST & BRADLEY MFG CO. CHICAGO ILL
Head raised by friction, and can be let down easily, so as not to strike into windrow or soft ground.
SEND FOR PAMPHLET—SENT FREE.

THE NEW CENTENNIAL
INCUBATOR.
Self-Regulating. No Electricity, Clockwork, etc. Can be used anywhere and by anybody. Send 3c-stamp for circular to A. M. HALSTED, Box 10, Rye, N. Y.
Halsted's Book on "Incubation and Incubators." 110 Pages. Nearly 100 Illustrations. 75 cents by mail.

BROWN LEGHORNS A Specialty.
Eggs, $2 for 13. Chicks for Sale in the Fall.
GEO. SCOTT, Springfield, N. J.

EGGS from Premium Langshans, Black Javas, P. Rocks, Brown Leghorns, W. C. B'k Polish, Pekin Ducks and Bronze Turkeys. Packed to hatch. Send a stamp for circulars. R. VANDERHOVEN, Rahway, N. J.

PLYMOUTH ROCK EGGS at $1 per 13, $1.50 per 26, $4 per 100. Securely packed. Stock the best. Write for circular Miss H. C. WILLIS, Saratoga Springs, N. Y.

A book devoted entirely to PLYMOUTH ROCK fowls, also a separate book on WHITE LEGHORNS, another on BROWN LEGHORNS, a book on curing POULTRY DISEASES, and another entitled HOW TO FEED FOWLS. Either of the above mailed for 25 cts., or all five for $1.00. Address the author
H. H. STODDARD, Hartford, Ct.

University of the State of New York.
American Veterinary College.
141 West 54th St. NEW YORK CITY.
The next session of this Institution will open October 2d, 1882. Catalogues and announcements can be had from the Dean of the Faculty. A. LIAUTARD, M.D.V.S.,
Dean of the Faculty.

POULTRY WORLD.

A monthly magazine, the oldest, largest, and best periodical devoted entirely to poultry ever published. Splendidly illustrated. $1.25 per year. Also the American Poultry Yard, the only weekly paper devoted entirely to poultry in existence. $1.50 per year. Both papers for $2.00. A sample copy of both mailed on receipt of nine cents in postage stamps.
Address H. H. STODDARD, HARTFORD, CT.

EVERY ONE Who Owns a WAGON Wants
A EUREKA FOLDING CANOPY TOP. Folds up like an umbrella. Weighs less than 12 lbs. Can be taken off or put on in 3 minutes. Made in sizes to fit business wagons, pleasure wagons and buggies. Send for illustrated circular and price list. Agents wanted everywhere. State where you saw this. D. G. BEERS & CO., Patentees and M'f'rs, Sandy Hook, Conn.

HAMPSHIRE DOWN LAMBS, by our imported Bucks. Large as Oxfords, hardy as Merinos. Jersey Red Spring Pigs, ready for delivery April 1st. H. B. Reg. Shorthorn Bull Calves. Catalogue Horses, Cattle, Sheep, Pigs, and Poultry, Free.
WM. L. BRADBURY & CO., Nason, Orange Co., Va.

THE NEW
AMERICAN DICTIONARY.
OF THE ENGLISH LANGUAGE,
WITH THE
Exact Definition, Proper Spelling & True Pronunciation
To which is appended an enormous amount of Most Useful and Very valuable Information of incalculable worth to every class, viz:
BANKERS, MERCHANTS LAWYERS, | DOCTORS, MINISTERS, STUDENTS, | LAND LORDS FARMERS, MECHANICS,
As well as people of no Special Calling.
Among the Multifarious Contents of this incomparable and comprehensive Volume will be found concise, important and correct Articles upon Chronology, Grammar, Proverbs, Scripture, Names, History, Insolvent, Interest and Land Laws of the different States and Territories of the Union, Census Returns, Showing Debt, Population, Manufactures, Production and Wealth of the United States, Ancient Mythology, etc., etc. In truth it is
The Very Essence of more than 100 Volumes,
RELATING TO EVERY BRANCH OF HUMAN KNOWLEDGE.
As Laws, History, Arts, Science, Finance, Commerce, Geography, and the World's History; making an unrivalled Ready Reference Library for Readers, Workers, Thinkers, and Writers. A new condensation of universal knowledge
WITH ONE THOUSAND ILLUSTRATIONS.
One copy of the "New American Dictionary" sent post paid, on receipt of One Dollar. Six copies, Five Dollars. Get five of your friends to send with you and you will have your own book free. Send Money by Registered Letter or Post Office Money Order. THE BEST BOOK OUT FOR AGENTS.
World Manufacturing Co. 122 Nassau Street, New York.

FURST & BRADLEY ADJUSTABLE HARROW. FURST & BRADLEY MFG CO. CHICAGO ILL.
is a slanting or straight Tooth Harrow-2 or 3 sections, each section 5 feet wide with 40 steel teeth.
SEND FOR PAMPHLET—SENT FREE.

TURKISH BATH HOTEL, 13 & 15 Laight St., New York. This well-known house is convenient of access from all parts of the city. The table is supplied with the best kinds of food, healthfully prepared. The house is noted for its pleasant parlors, and the cheerful, home-like feeling that prevails. It has just been refitted, and the prices are moderate. Connected with the house are Turkish Baths, etc., etc. Send for circular. M. L. HOLBROOK, Proprietor.

30 Fine White Gold Edge Cards, name on, 10c. Sample Book, 25c. F. M. SHAW & CO., Jersey City, N. J.

80 Sample Cards, All New, name on, 10c. Agts. Outfit, 6c. CARD WORKS, Birmingham, Conn.

50 Cards, Feather & Hand Series, &c., in fancy case 10c. Samples 3c. Empire Card Co., Birmingham, Ct

50 Chromo, Motto, Hand and Bouquet Cards, with name 10c. Sample book, 25c. Franklin Printing Co., New Haven, Ct.

15c "A Violet from Mother's Grave" & 49 other popular Songs, words & Music, entire, all for 15c. PATTEN & CO., 47 Barclay St., N. Y.

CARDS Send two 3c. stamps to Charles Tollner, Jr., Brooklyn, N. Y., for a new set of large Chromo Cards and catalogue of latest designs published.

WAR ranted best sold; 40 new, no two alike, Chromo Visiting Cards, name on, 10c. Agents Wanted. L. JONES, & CO., Nassau, N. Y.

Phonography, or Phonetic Shorthand Catalogue of works, with Phonographic alphabet and Illustrations, for beginners, sent on application. Address, Benn Pitman, Cincinnati, O.

150 Elegant Needle-work Patterns, for all kinds of Embroidery and Lace-work, with diagrams showing how to make the stitches, 15c. post-paid; 2 sets, 25c. PATTEN & CO., 47 Barclay St., N. Y.

NEW SCRAPBOOK CARDS.—The DADDY SET. Most comical set ever issued. "The Old Folks laugh till they weep, the Babies laugh till they sleep." Price 10 cents per set. New list free. NATIONAL CARD WORKS, New Haven, Conn.

40 LARGE CHROMO CARDS, no 2 alike, with name, 10c., post-paid. G. I. REED & CO., NASSAU, N. Y.

70 ELEGANT CARDS, [Extra fine Stock] Gilt-Fringe, Chromo, Fan, Ivy-Wreath, Gilt Vase of Roses etc. name neatly printed in fancy type 10cts. 14 names $1. Agents make 40 per cent. Book of 90 Styles for 1882 25c. or free with $1. order. CAXTON PRINTING Co. Northford Ct.

YOUR NAME In this style type Minnie B. Rose On 50 elegant new Chromo Cards 10c. 14 pks. $1 Agts. make 50 per cent. Please send 20c for Agent's Album of samples, Premium List &c. Blank Cards at wholesale. NORTHFORD CARD WORKS, Northford, Conn.

100 All New Style Best Quality Lithographed CARDS Your Name in Fancy Lettering Printed On All FREE! We send this the most Elegant pack ever published free to every one sending 1c cts. for our new price list, & Illustrated Premium List. Agents Large Sample Book & 100 samples 25 cents. Address, STEVENS BROTHERS, Northford, Conn.

Series For 1882. 50 Elegant Imported designs, all Chromos, (XXX board) in beautiful colors, Gold & Silver, German & French Florals, Scenery from the River Rhine, Arctic Scenes, Mossrose Series, Ocean Views, Bird Mottoes, &c. name in fancy script type, 10c. or 25 Extra Large size Embossed Chromos, name in any style, 10c. Ag'ts make 40 per cent, 14 packs of either for $1. Our beautiful bound Book of 100 Styles, for 1882, 25c. Full particulars with every order. Blank Cards at wholesale. CARD MILLS Northford Ct.

Agents wanted. $5 a Day made selling our NEW HOUSEHOLD ARTICLES and FAMILY SCALE. Weighs up to 25 lbs. Sells at $1.50. DOMESTIC SCALE Co., Cincinnati, O.

RARE OPPORTUNITY TO PROCURE HOMES. The Trustees of the Estate of D. J. FOSTER offer Houses and Lots in Village of Whitehall, and improved and unimproved Farms in Oceana, Ctwago, and Muskegon Co., Michigan. Timber alone worth all we ask for lands. Liberal terms and prices low to close the estate. Apply for particulars to A. J. FOSTER, Trustee, 101 Bedford St., Boston, Mass.

MICROSCOPES Opera Glasses, Spectacles, Telescopes, Barometers, Thermometers, and Compasses. R. & J. BECK, Manufacturing Opticians, Philadelphia, Pa. Send for Illustrated Priced Catalogue.

Fort Edward Collegiate Institute, Re-built! Handsomest and best appointed Boarding Seminary in the State. Steam-warmed. Twenty-fifth year, Sept 11th. See prospectus. JOS. E. KING, D.D., Fort Edward, N. Y.

# OUR NEW BOOKS FOR JUNE.

## Life and Writings of Frank Forester (H. W. Herbert).

Embracing an authentic Memoir of his Life and hitherto unpublished Sketches. Edited by DAVID W. JUDD. Two Volumes. A most valuable contribution to American Literature. The full sketch of Herbert is from the pen of COL. THOS. C. PICTON, his pupil, friend, and life-long companion. Illustrated with Engravings of Frank Forester, the Cedars, &c., &c. Price, post-paid, $1.50 per Volume.

## Canoe and Camera.

New Edition just published. With an entire new Map of all the great canoe tours of Maine. A Photographic Tour of two hundred miles through the Maine forests. By THOMAS SEDGWICK STEELE. Sixty Illustrations by well-known artists. With new maps of the State, the result of recent personal exploration by the author. Handsomely bound in cloth and gold. Price, post-paid, $1.50.

## Dogs of Great Britain, America, and Other Countries.

*New and Enlarged Edition for* 1882.

Their Breeding, Training, and Management in Health and Disease, comprising all the essential parts of the two Standard Works on the Dog by STONEHENGE. Thereby furnishing what once cost $11.25 for $2.00. It describes the best Game and Hunting Grounds in America. Gives names of Prize Winners in Dog Shows down to 1882. Contains over one hundred beautiful Engravings, embracing most noted Dogs in both Continents. Making together, with Chapters by American Writers, the most complete Dog Book ever published. 12mo. Tinted Paper. Price, post-paid, $2.00.

## How to Hunt and Trap. *Just Enlarged and Rewritten by the Author.*

Containing full instructions for hunting Buffalo, Elk, Moose, Deer, Antelope, Bear, Fox, Grouse, Quail, Partridge, Ducks, Woodcock, Snipe, and all the other Game, Water-fowl, etc. Also the localities where Game abounds. Instructions are given on Steel-Traps, how to construct Home-made Traps, and how to trap all kinds of Wild Animals, Game, etc. This work is one of the latest, and generally regarded as one of the best, most complete, popular, and standard works of its kind. We now offer it as the companion book to the author's last work, "Practical Taxidermy and Home Decoration." With nearly 100 Illustrations. By JOSEPH H. BATTY, Taxidermist of U. S. Surveys; author of "Practical Taxidermy and Home Decoration." Price, post-paid, $1.50.

## The American Bird-Fancier;

Or, How to Breed, Rear, and Care for Song and Domestic Birds, New, Revised, and Enlarged Edition. By D. J. BROWNE, and Dr. FULLER WALKER. This valuable and important little work for all who are interested in the keeping of Song-Birds, has been revised and enlarged, and is now a complete manual upon the subject. All who own valuable birds, or wish to do so, will find the new Fancier indispensable. Illustrated. Paper Cover. Price, post-paid, 50 cents.

## The Saddle-Horse.

A Complete Guide for Riding and Training. This is a complete and reliable Guide-Book for all who desire to acquire the accomplishment of horsemanship, and who wish to teach their animals how to perform various feats under the saddle. 12mo. Handsomely Illustrated. Tinted Paper. Price, post-paid, $1.00.

## Sweet Potato Culture.

Giving full instructions from starting the plants to harvesting the crop. With a chapter on the Chinese Yam. By JAMES FITZ, author of "Southern Apple and Peach Culturist." This little work supplies all needed information on the subject treated, giving all the steps from sprouting to storing the crop. Paper Cover. 12mo. Price, post-paid, 40 cents.

## The Chemistry of the Farm.

Treating with the utmost clearness and conciseness, and in the most popular manner possible, of the relations of Chemistry to Agriculture, and providing a welcome manual for those, who, while not having time to systematically study Chemistry, will gladly have such an idea as this gives them of its relation to operations on the farm. By R. WARINGTON, F. C. S. Cloth. 12mo. Price, post-paid, $1.00.

## Peach Culture.

This is the only practical Guide to Peach Culture on the Delaware Peninsula, and is the best work upon the subject of Peach Growing for those who would be successful in that culture in any part of the country. It has been thoroughly revised, and a large portion of it rewritten, by HON. J. ALEXANDER FULTON, the author, bringing it down to date. Cloth. 12mo. Price, post-paid, $1.50.

## Silos and Ensilage.

The Preservation of Fodder Corn and other Green Fodder Crops. Bringing together the most recent information, from various sources. Edited by Dr. GEORGE THURBER. Fully Illustrated. Dr. Thurber's eminent reputation as a horticulturist and agriculturist must secure a wide sale for this volume among farmers, who are now so actively interested in the construction of silos. Cloth, 12mo. Price, post-paid, 50 cents.

## Stewart's Irrigation for the Farm, Garden, and Orchard.

This work is offered to those American Farmers, and other cultivators of the soil, who, from painful experience, can readily appreciate the losses which result from the scarcity of water at critical periods. By HENRY STEWART. Fully Illustrated. Price, post-paid, $1.50.

## Allen's New American Farm Book.

The very best work on the subject; comprising all that can be condensed into an available volume. Originally by RICHARD L. ALLEN. Revised and greatly enlarged by LEWIS F. ALLEN. Cloth, 12 mo. Price, post-paid, $2.50.

## Curtis's Wheat Culture.

How to double the yield and increase the profits. By D. S. CURTIS. Illustrated. Paper covers. Price, post-paid, 50 cents.

## Fuller's Small Fruit Culturist.

Rewritten, enlarged, and brought fully up to the present time. This is the first work exclusively devoted to Small Fruits, and it continues to be the recognized authority. It is equally adapted to the needs and requirements of the private cultivator and the market grower. This book covers the whole ground of Propagating Small Fruits, their Culture, Varieties, Packing for Market, etc. While very full on the other fruits, the Currants and Raspberries have been more carefully elaborated than ever before, and in this important part of his book the author has had the invaluable counsel of CHARLES DOWNING. The chapter on gathering and packing the fruit is a valuable one, and in it are figured all the baskets and boxes now in common use. The book is very finely and thoroughly illustrated, and makes an admirable companion to the Grape Culturist, by the same well-known author, ANDREW S. FULLER. Price, post-paid, $1.50.

ORANGE JUDD CO., 751 BROADWAY, NEW YORK.

ENJOY
A CUP OF GOOD TEA.

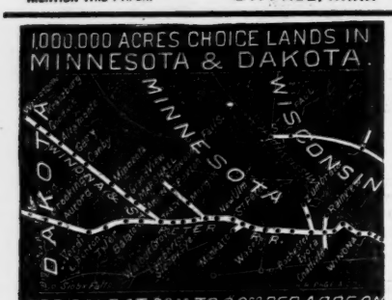
SUN CHOP TEA

3½ LBS. of our celebrated
SUN-SUN CHOP TEA,
the Finest and MOST BENEFICIAL Imported, sent by Mail on receipt of $2.50, postage paid. It is a BLACK TEA, with a GREEN TEA flavor. RECOMMENDED to SUIT ALL TASTES. Sample of any of our Teas by mail on receipt of 6 Cents. Postage-stamps taken. GOOD TEAS, 30c., 35c., and 40c. EXCELLENT TEAS, 50c. & 60c. All EXPRESS Charges PAID on $5.00 Tea orders.

On $20.00 TEA Orders we will deduct 15 per cent off and Pay ALL EXPRESS CHARGES.

The Great
American Tea Company,
IMPORTERS.
P. O. Box 289. 31 & 33 VESEY ST., New York.

BEST WHEAT
AND GRAZING LANDS ARE FOUND ON
THE Northern Pacific R. R.
IN MINNESOTA, DAKOTA,
AND MONTANA.
BIG CROP AGAIN IN 1881
LOW PRICES; LONG TIME; REBATE FOR IMPROVEMENT; REDUCED FARE AND FREIGHT TO SETTLERS.
FOR FULL INFORMATION, ADDRESS
R. M. NEWPORT, GEN. LAND AGT.,
MENTION THIS PAPER. ST. PAUL, MINN.


1,000,000 ACRES CHOICE LANDS IN
MINNESOTA & DAKOTA.
MINNESOTA
WISCONSIN
DAKOTA
FOR SALE AT $2.00 TO $6.00 PER ACRE ON EASY TERMS. FREE FARE & LOW FREIGHT TO PURCHASERS. FOR GUIDE CONTAINING MAP & FULL INFORMATION, ADDRESS:
CHAS. E. SIMMONS,
LAND COM'R C. & N.W. RY CHICAGO, ILL.

Iowa Rail Road Land
Over Half Million Acres.
For Sale by the Iowa R. R. Land Co., Cedar Rapids, Iowa.

LANDS AND HOMES
720,000
Acres of timber and prairie Land along the line of the St. Louis and San Francisco Railway for sale on seven years' time, at from $2.00 to $3.00 an acre. Free transportation from St. Louis to purchasers as per Circular sent on application to
W. H. YEATON, Asst. L'd Com. } Temple Building, St. Louis, Mo. { W. H. COFFIN, Land Com.
SOUTHWEST IN MISSOURI

MARYLAND FARMS $7 to $25 per acre. Short winters, breezy summers, healthy climate. Catalogues free. H. P. CHAMBERS, Federalsburgh, Md.

FARMS. 150 Delaware Fruit and Grain Farms cheap. Catalogues free. A. P. GRIFFITH, Smyrna, Del.

MIXED FARMING
IN NEBRASKA.
Grain, Corn, and Live Stock Growing Combined.
The most Profitable and agreeable of any occupation.
1881
Reports prove the agriculturists of Nebraska to have been the most successful of any people in the West.
Write for information about the above matters—also about U. P. Ry. lands in this State, which will be sent Free in great variety, by LEAVITT BURNHAM,
Land Commissioner U. P. Ry. Co.,
Omaha, Neb.
☞ Refer to this advertisement.

IOWA!!
Improved and unimproved Farms for sale in the rapidly developing Dairy and Farming Districts of Northwestern Iowa. Payments can be extended over a series of years. For information address SAMPSON & FRENCH,
Storm Lake, Buena Vista Co., Iowa.

SOUTH Don't locate before seeing our James River Settlement. *Illus. catalogue free.* J. F. MANCHA, Claremont, Surry Co., Va.

SAFE INVESTMENTS
Of large or small amounts are made by JOHN D. KNOX & CO., Bankers and Loan Agents, Topeka, Kansas. Special attention given to placing money on farm and other good and productive property at 6 to 8 per cent. for Eastern parties. We have made many hundreds of loans for persons from England to California. Can give the best of references. Pay interest on Time Certificates of Deposits.
☞ Send for a free copy of KNOX'S INVESTOR'S GUIDE containing particulars and references. Address
JOHN D. KNOX & CO.,
Topeka, Kansas.

☞ FRIENDS If you are in any way interested in
BEES OR HONEY,
We will with pleasure send you a sample copy of our MONTHLY GLEANINGS IN BEE CULTURE, with a descriptive price-list of the latest improvements in Hives, Honey Extractors, Artificial Comb, Section Honey Boxes, all books and journals, and everything pertaining to Bee Culture. *Nothing Patented.* Simply send your address on a postal card, *written plainly*, to
A. I. ROOT, Medina, Ohio.

The richest, creamy BEER ever quaffed. Purifies the Blood. Healthful and refreshing. The best Summer Drink. Sent by Mail on receipt of 25 cents, in postage stamps.
Address: BEAN & RABE, Wholesale Druggists,
Nos. 47 & 49 N. 2d St., Philadelphia.

FAY'S
WATER-PROOF
BUILDING MANILLA.
(ESTABLISHED IN 1866.)
This water-proof material, resembling fine leather, is used for roofs, outside walls of buildings, and inside in place of plaster. Made also into carpets and rugs. Samples and Catalogue free.
W. H. FAY, Camden, N. J.

ADVERTISING RATES.
American Agriculturist.
ENGLISH EDITION.
*Ordinary Pages*, $1.00 *per line* (agate), each insertion
*Last Page, and Third Cover Page*, $1.25 *per line.*
*Second Cover Page*—$1.50 per line.
*Page next to Reading and Last Cover Page*—$2.00 per line.
No advertisement taken for less than $3.00 each insertion.
*Fourteen agate lines make one inch.*
GERMAN EDITION.
*Ordinary Pages*, 10 cents per line, each insertion.
*Second Cover Page*, 15 cents per line.
*Page next to Reading and Last Cover Page*, 20 cts. per line.
No advertisement taken for less than $1.00 each insertion.
☞ No Advertisement of Medicines or Humbugs received.
Address all orders to
ORANGE JUDD COMPANY, 751 BROADWAY, N. Y.

(Write for Price List, Form 11; mention this publication.)
An Age in Advance of All Other Inventions.
THE
AUTOMATIC
OR "NO TENSION" SEWING MACHINE.
Embodies Entirely New Principles and Methods of sewing mechanism.
Runs with one-third the Power of the lightest running machine of other makes.
By means of our Automatic Device, Numerical Stitch Indicator, etc., makes from a single spool a seam stronger and more beautiful than by any combination of two threads.
Ladies careful of Health and appreciating the Best will now have no other.
Adapted for Hand or Treadle.
Write for our NEW ILLUSTRATED PRICE LIST, Form 11, just issued, and full of interest to all owning or using a sewing machine.
WILLCOX & GIBBS S. M. CO., 658 BROADWAY, N. Y.

GRATEFUL—COMFORTING.
EPPS' COCOA
BREAKFAST.
"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavored beverage which may save us many heavy doctor's bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack where ever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette.*
Made simply with boiling water or milk. Sold in tins only (¼ lb and 1 lb), labeled
JAMES EPPS & CO., Homœopathic Chemists,
LONDON, ENGLAND.

ALABASTINE Superior to KALSOMINE for Walls and Ceilings, is an article of unequalled merit, and can be applied by any one. It is a valuable discovery. It will pay you to send for sample card and testimonials to
SEELEY BROS.,
32 Burling Slip, New York City, or
AVERILL PAINT CO., Chicago or Boston.

Hires' Improved Root Beer,
Package 25cts. Makes 5 gallons of a delicious, strengthening and wholesome Drink. Sold by Druggists, or sent to any address on receipt of 25cts. Address
CHARLES E. HIRES, 48 N. Del. Ave., Philadelphia, Pa.

Rev. Leonard Bacon, D. D.
Hon. A. H. Stephens,
and others
recommend
them.
MENTION THIS PAPER.
Send for circular to
N.H. INVALID CHAIR Co. New Haven, Ct.


American Agriculturist
SUBSCRIPTION TERMS.
(English and German Edition at same Rates.)
For *One* or *Two* Subscriptions, *One Year*, the price will hereafter be (post-free) $1.50 each, instead of $1.60.
[ALL POST FREE.]

| | | |
|---|---|---|
| *Three Subscribers one year* | $4, | or $1.33 each |
| *Four Subscribers one year* | $5, | or $1.25 each. |
| *Five Subscribers one year* | $6, | or $1.20 each. |
| *Six Subscribers one year* | $7, | or $1.17 each. |
| *Seven Subscribers one year* | $8, | or $1.14 each. |
| *Eight Subscribers one year* | $9, | or $1.12 each. |

Ten or more Subscribers, post-free, Only $1 each.
[A free copy to sender of club of 20 at $1 each.]
☞ Single Numbers sent, postpaid, for 45 cents each. Specimen numbers for examination sent, postpaid, for 10 cents each.... ☞ Subscriptions can begin at any time.
The Above Terms are for the United States and Territories, and British America. Add 14 cents extra per year for papers sent outside of the United States and British America, *except* to Africa. For the last named country the extra charge is 36 cts. per year, to cover extra postage, and Single Numbers, 17 cents, post-paid..... Remittances, payable to Order of Orange Judd Company, may be sent in form of Checks or Drafts on N. Y. City Banks or Bankers; or P. O. Money Orders; or in Registered Letters, such letters to have the money enclosed in the presence of the Postmaster, and his receipt taken for it, and the postage and registering to be put on in stamps. Money remitted in any one of the above three methods is safe against loss. Bound Volumes from Vol. 16 to 40 inclusive, supplied at $2 each, or $2.50 if to be sent by mail. Sets of numbers sent to the office will be bound in our regular style for 75 cents (30 cents extra if to be returned by mail). Missing numbers in such volumes supplied at 10 cents each.—Any Numbers of the paper issued for 25 years past, sent post paid for 15 cents each; or *any* full year, sent unbound, for $1.50..... Clubs of Subscribers can be increased at any time, at the club rates, if new members begin at same date as the original club.